25028

F-15 Eagle

D&S Vol. 14

VERSIONS A, B, C, D & E

in detail & scale

Bert Kinzey

DETAIL & SCALE SERIES

The "Detail & Scale" series of publications was the first to focus its attention on the many physical details of aircraft, such as cockpit interiors, radar and avionics installations, armament, landing gear, wheel wells, and ejection seats. These details are covered more thoroughly than in any other series, and are presented in the form of close-up photography and line drawings. Special consideration is given to the detail differences between the variants and subvariants of the aircraft.

This detailed coverage is supplemented with scale drawings that show five full views. Charts and tables provide extensive amounts of technical data, making this series one of the most complete technical references on aircraft that is available.

Although a brief historical summary is always presented, it is not intended to be all inclusive; it will, however, provide the most important dates and events in the development and operational life of each aircraft.

For scale modelers, a complete modeler's section is provided that reviews all the presently available scale model kits of the aircraft, and covers the decals available for these kits. Other features such as how to do conversions and how to make kit corrections are also often included.

The "Detail & Scale" series is detailed, technical, and accurate, providing the most comprehensive coverage of this nature that is available anywhere in aviation publications.

ABOUT THE AUTHOR

Bert Kinzey, author and president of Detail & Scale, Inc., was born in Richmond, Virginia in 1945. The following year his family moved to Blacksburg, Virginia where his father became a professor of architecture at Virginia Tech (VPI). Until he was about six years old, Bert was often frightened by the loud piston-driven military fighters that sometimes flew low over his home while he was outside playing. On more than one occasion he came running into the house extremely frightened by an aircraft that had just flown over.

His father took him to the VPI airport, where cadets were learning to fly on J-3 Piper Cubs, and arranged for him to go for a flight. Bert sat on his father's lap for a short trip around Blacksburg, and that forever ended his fear of airplanes. Later, Bert's father built a balsa and tissue model of the J-3 Cub, and Bert's interest in modeling began.

Bert's fear of aircraft soon gave way to a love of aviation, and he began scale modeling. Bert looked at modeling (and still does) not as a hobby in and of itself, but as a small facet of his overall interest in aviation.

The author in the rear seat of an F-5F after returning from a Red Flag mission.

In 1959 his family moved to Gainesville, Florida, where his aviation interest took second place to his trumpet playing in high school. In 1964, he graduated from P.K. Yonge High School and returned to Virginia Tech specifically to fulfill his lifetime dream to be in the Virginia Tech Regimental Band—The "Highty Tighties."

Upon graduation he was commissioned a second lieutenant in the Army, and he spent almost eight years as an army officer. During this time he commanded a Hawk guided missile battery in Korea and later wrote and taught classes in airpower, the Soviet air threat, and air defense suppression at the Army's Air Defense School at Ft. Bliss, Texas.

In August 1976, he resigned from active duty in the Army, but his reputation as being knowledgeable in all aspects of military airpower led to a job offer as a civilian with the Department of the Army. He served in this position for four years as a "subject matter expert" in military airpower and was responsible for the development of the Army's new program on aircraft identification, the first in the world to feature dynamic simulation. During this time he started Detail & Scale as a part-time business to provide detailed reference material on military aircraft.

Detail & Scale became so successful that Bert resigned from his position with the Army to devote full time to his new company. Since then he has written several books as well as articles for several magazines. He is also an avid modeler and member of the International Plastic Modelers Society (IPMS). In July 1982, he was presented with a special award by IPMS/USA in recognition for his contributions to the society. He is also a member of the American Aviation Historical Society, and the Aviation and Space Writers Association.

As a youngster who feared airplanes, it is ironic that Bert should now be so involved with aviation. He is a licensed pilot, and lives with his wife, Lynda, and their two children, Jan and Chip, in Peachtree City, Georgia, near Atlanta.

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Bert Kinzey

TAB BOOKS Inc.
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England

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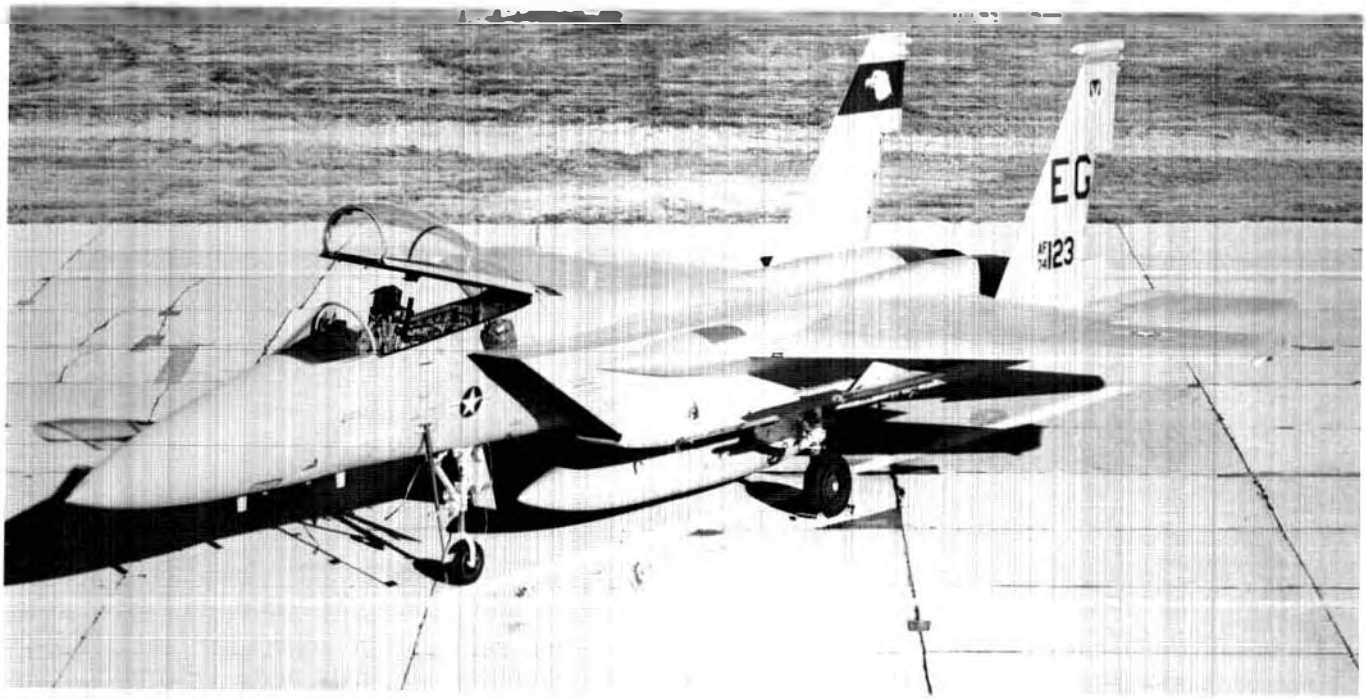
Front Cover. F-15A, 76033, is the wing commander's aircraft of the 33rd TFW. It is named "Gulf Spirit" and is the second F-15 so named.

Rear Cover. This self portrait by the author during a flight in the F-15 shows the all around visibility to good effect. Note the horizon on the right side of the photograph.

INTRODUCTION



F-15A, 74123, is shown in the markings of the 60th TFS, 33rd TFW, from Eglin AFB, Florida, on July 9, 1982. (Cockle)

In 1978, Detail & Scale released its first book in a new format that emphasized the physical details of the aircraft covered. This was a departure from the standard aviation books on the market which usually emphasized the history or the markings of the particular aircraft. That first Detail & Scale publication was on the F-15 Eagle which was then a new aircraft just entering operational service with Air Force units.

In the time since that book was released the F-15 has become the premier fighter for the U.S. Air Force, replacing first the F-4 Phantom in tactical fighter squadrons, and now the F-106 Delta Dart in fighter interceptor squadrons. During the same time, our book sold out of two different printings, and was the most successful of the six books we did before Detail & Scale and Aero Publishers combined efforts to expand and improve the Detail & Scale series.

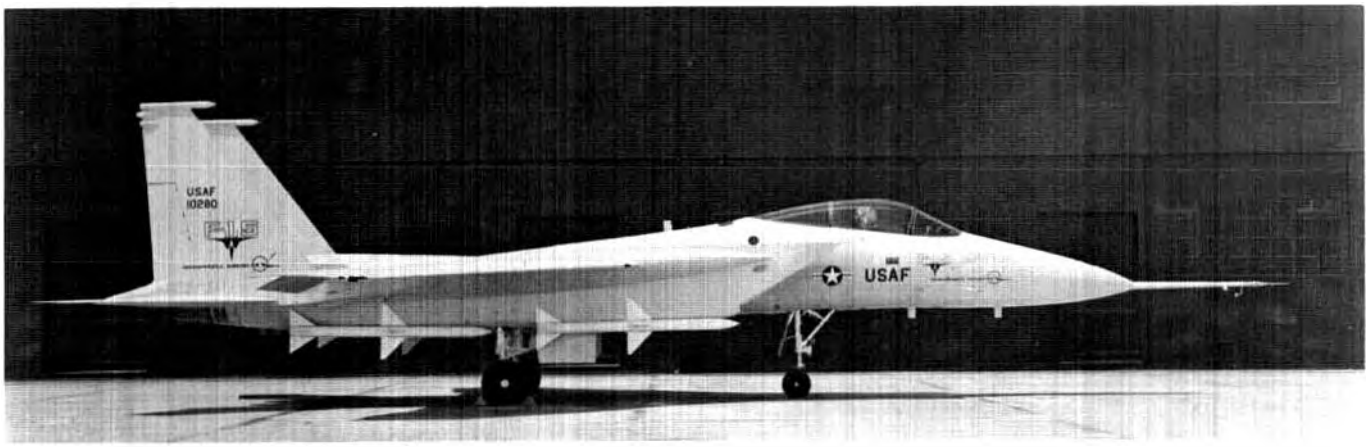
With the Eagle now the primary fighter in the U.S. Air Force, and the first two printings of our book out of print, it seemed important to revise and expand our first book to meet the standards of the new Detail & Scale series that has resulted from the combination of our efforts with those of Aero Publishers. We needed to include more detailed coverage of the aircraft, and we needed to provide coverage of the F-15C and F-15D that have been produced since the release of our first book. Also, in the revised edition of that book, we promised a Part II covering the F-15C-D, the F-15E dual role fighter, and the foreign sales. What we have done is revise and improve our first book, and have added the coverage that would have been included in Part II to this expanded new publication.

In this new release, the reader will find more extensive coverage of the F-15 than we were previously able to provide. While the differences between the F-15A/B and F-15C/D are relatively few and minor, these are now covered, and a special section is included that deals with the F-15E. Additionally, we have updated our modeler's section to include new kits and decals that have been released since our first publication.

Another new feature of this publication is a first hand account of a flight in an F-15 by the author. This flight was not a demonstration ride for the press, but was an actual intercept training mission out of Eglin AFB, Florida. This account not only gives an unusual insight to the performance capabilities of the F-15, but provides the reader with an idea of what it is like for the layman to fly in such a powerful aircraft. That is something few people get to realize, and they are only left to wonder and imagine what such an experience would be like.

Detail & Scale and Aero, now a division of TAB BOOKS Inc, are pleased to offer this new monograph on the F-15. We believe it to be the most detailed book available on this important aircraft in America's arsenal for peace and freedom.

DEVELOPMENTAL HISTORY



F-15A, 710280, was the first Eagle, and it is shown here in its original configuration with blunt wing tips and no snag in the leading edge of the horizontal stabilator. ***(McDonnell Douglas)***

During the early and mid 1960's, the Soviet Union was developing a new generation of fighter aircraft that not only reflected technological advances, but also were of a different thinking and philosophy in fighter aircraft design. Prior to that time, the Soviets had designed fighters that were generally simple, short range, light weight, and relatively lightly armed. They could not carry much in the way of air-to-surface ordnance, and were principally clear-air-fighters. This design philosophy was reflected in the MiG-15, MiG-17, MiG-19, and MiG-21 designs. However, the new generation of fighters were more sophisticated, possessed an all-weather capability, and had a greater ordnance-carrying capability than the existing fighters. Included in these new designs were the MiG-23 "Flogger," MiG-25 "Foxbat," and MiG-27 "Flogger D."

Knowing that these fighters would represent a considerable advance over existing Soviet aircraft, and knowing they would be produced in far greater numbers than any fighter the United States could produce, the U.S. Air Force realized that it needed a new fighter that would be superior to these new Soviet aircraft, and even those that would follow them in the early 1980s. After all, Soviet-built MiG-17's, -19's, and -21's were giving U.S. fighters fits in the skies over Vietnam at that time, and this further dramatized the need for a new air superiority fighter.

The Navy had already gone ahead with its new fighter, the F-14 Tomcat, and the Air Force began looking for a fighter that would be superior to any of the new Soviet aircraft. This new fighter would be expected to go up against the new Soviet fighters and win even when the Soviets had their usual superiority in numbers.

Not since the F-86 Sabre had the Air Force developed a pure air superiority fighter that was designed to win control of the skies in head-on combat with enemy fighters. Since the Sabre, Air Force fighters had either been fighter-bombers, like the F-100 Super Sabre, F-105 Thunderchief, and F-4 Phantom, or they had been pure interceptors, like the F-89 Scorpion, F-102 Delta Dagger, and F-106 Delta Dart. But now the need for an air superiority fighter was clearly recognized in order to counter the new threat, so the development of the new fighter was begun in earnest.

Bids and proposals came from McDonnell Douglas, General Dynamics, North American, Boeing, Grumman, Fairchild Hiller, Lockheed, and LTV, but soon the field was narrowed to McDonnell Douglas, North American, and Fairchild Hiller. Finally, in December 1969, McDonnell Douglas was awarded the contract for the F-15.

Roll-out for the F-15 was on June 26, 1972, and the

This artist's concept of the F-15 shows the original blunt wing tips, but the snag in the leading edge of the horizontal stabilator is included. It was not on the original F-15. ***(McDonnell Douglas)***

F-15A, 710285, is shown early in the flight evaluation program. Note the open forward main gear door.
(McDonnell Douglas)

first flight was made at Edwards AFB, California, on July 27. McDonnell Douglas' Chief Test Pilot, Irving Burrows, flew 71-0280 to record the maiden flight. The first flight for the TF-15 (later F-15B) was made by 71-0290 on October 18, 1973.

Thus the concept for this new fighter became a reality, and the F-15 entered its evaluation testing. Relatively minor problems were encountered during this testing, and some corrections were noticeable in the form of external changes to the airframe. The original blunt wing tips were "clipped" at a diagonal angle to solve a buffet and wing loading problem. A snag, or saw tooth, was added to the leading edge of the stabilators to solve a flutter problem. The speed brake on top of the fuselage was enlarged so that more drag could be produced at smaller extension angles. This larger speed brake was fitted with an external strake on its centerline, but this was later removed.

Testing and evaluation also proved the F-15 to be quite a performer. Thrust provided by its two powerful Pratt & Whitney F100 turbojets allowed it to accelerate while climbing vertically. Its maneuverability was equally impressive, and, although it was a very large fighter, it could turn much tighter than the F-4 Phantom and other existing fighters.

The exceptional performance of the Eagle is not the only advantage it has over its potential adversaries. Like the bird of prey for which it is named, the F-15 has a sharp eye that can look down on its prey with a keen sharpness that gives it a decided advantage over its victim. For the F-15, this "eye" is the Hughes AN/APG-63 radar. This radar has been described as "the most significant factor contributing to the F-15's air-to-air combat capability." It is said to be, "so far advanced that it is something of a decade ahead of anything else."

The APG-63 is a multi-mode, pulse Doppler radar which is optimized for air-to-air combat. It has a look-down, shoot-down, capability superior to any other radar. In tests, the radar has shown its capability to lock on targets flying at altitudes of as little as 20 to 50 feet above the terrain. During these tests, which were flown against aircraft simulating the capabilities of the MiG-23 Flogger B and MiG-21 Fishbed, the F-15 won 46 of 47 engagements, and the other engagement resulted in a "tie" where neither aircraft fired.

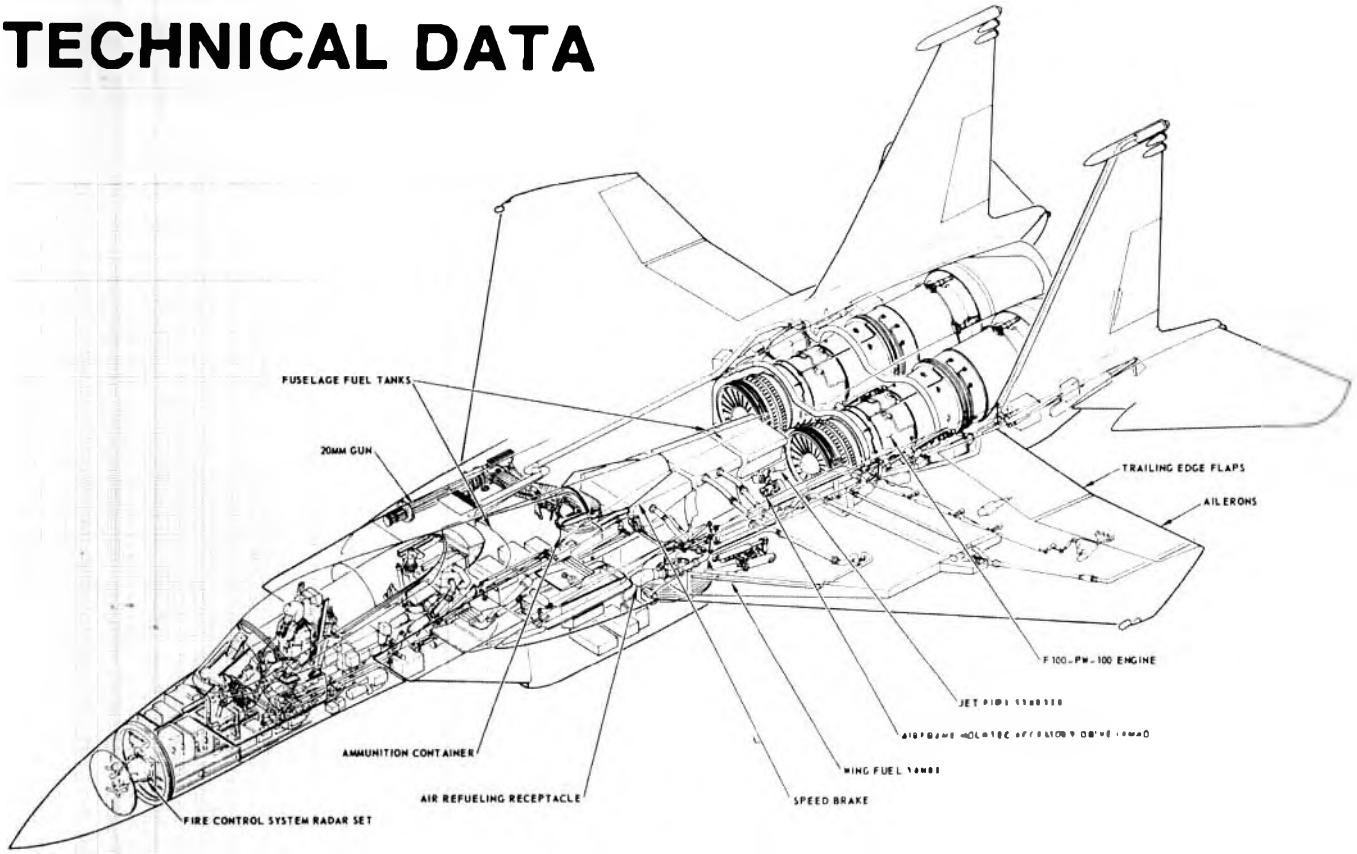
The radar has a lock-on range in excess of 100 miles, and will present clutter-free tracking and missile guidance even when targets are flying in ground clutter. And it also has air-to-ground modes that provide ranging for automatic bomb runs. There is also a ground mapping mode.

So the "eye of the Eagle" is important to the effectiveness of the aircraft in combat just as flight performance is. With a radar that will allow the pilot to see before being seen, and tell him more about what the enemy is doing than the enemy knows about what he is doing, the F-15 "driver" has still another advantage over his adversary.

The radar is not the only electronic wonder on the F-15. While the F-15 can carry external electronics counter-measure pods, it has quite an impressive set of electronic equipment mounted internally.

The radar warning system displays threat information as alphanumerics, as opposed to strobe lines used in older systems. For example, a threat aircraft will have a small airplane symbol, an SA-2 will have a

TECHNICAL DATA



PERFORMANCE:

Maximum Speed	Mach 2.5+ at 60,000 feet
Combat Ceiling	65,000 feet +
Max Load Factor, Positive	+9.0 g
Negative	-3.0 g
Thrust-to-weight, Take off	1.24:1
Air-to-air[1]	1.44:1
Take-off run, inteceptor	900 feet
Landing run, interceptor	2,500 feet
Approach speed	135 knots
Touchdown speed	120 knots
Minimum control speed	100 knots
Ferry range with 3 external tanks	2800+ nm

WEIGHTS:

Normal interceptor take-off weight[2]	40,900 lbs
Max air interceptor weight[3]	64,200 lbs
Combat weight (½ internal fuel)	34,500 lbs
Max external stores	12,000 lbs

ENGINES:

2 Pratt & Whitney F-100-PW-100 Turbofans

Max thrust dry	16,200 lbs
Max thrust afterburner	25,000 lbs
Length	191 in
Diameter	51 in
Weight	2,855 lbs

FUEL CAPACITY: (Figures are approximate)

Internal	11,200 lbs
2 Fast packs	10,000 lbs
3 External 600 gallon tanks	11,800 lbs
Total fuel capacity	33,000 lbs

NOTES: 1. ½ internal fuel

2. 4 x AIM-7F, 4 x AIM-9L and 950 rounds of 20 mm ammunition
3. 4 x AIM-7F, 950 rounds of 20 mm ammunition, 3 external tanks, and 2 fast packs

"2" and an SA-3 will have a "3", etc. Anti-aircraft artillery will have an "A". The location of a missile site will have a circle around it, and when the circle begins to blink the pilot knows that the particular site has fired a missile. The most immediate or greatest threat is enclosed by a diamond. The countermeasures equipment automatically allocates jamming power to counter the hostile weapon system or radar as determined by the immediacy of that particular threat.

So the F-15 is far more than a superb flying machine. It is a collection of the latest, state-of-the-art electronic gadgetry, black boxes, and electronic warfare systems that are so vital for survival in combat today. But with all of this capability, the Eagle has a lot of room to grow. In the F-15A and F-15C there is a large area behind the pilot's seat that is now only partially used. There still remains a lot of potential growth area. Already, black boxes located in this area perform electronic warfare functions that are normally done by externally carried pods on other aircraft. But, as newer and better equipment is developed, it can be added to the remaining available growth space. There is little doubt that before the last Eagle flies its last mission, this area will be full of equipment that will further enhance the capabilities of the aircraft beyond what they are now.

The only use to date of the F-15 in combat has been by the Israeli Air Force. Reports claim fifty-six kills over various types of Soviet-built aircraft to include three MiG-25 Foxbats. During this combat, not one F-15 has been lost. This is certainly excellent testimony to the superiority of the F-15's design and capabilities.

The future of the F-15 appears to be long and diversified. Although designed to be a fighter, "capable of gaining and maintaining air superiority through air-to-air combat," McDonnell Douglas designed an impressive ground attack capability into the F-15. This potential is currently being realized in the F-15E that won the competition with the F-16E for the Air Force's new dual role fighter. Additionally, the Eagle is being considered for the "Wild Weasel" air defense suppression mission, and it has already conducted the first launch of an anti-satellite missile.

From air superiority fighter to satellite killer, the capabilities of the F-15 seem extraordinary. Designed in the finest traditions of air superiority fighters like the P-51 Mustang and the F-86 Sabre, the Eagle seems destined to be recorded in history as one of the truly classic fighter aircraft. Its predecessor off of the McDonnell Douglas productions was another classic, the F-4 Phantom. The Phantom is a hard act to follow, but the F-15 appears up to the task.

Although designed as an air superiority fighter, a tremendous ground attack capability was designed into the F-15 from the start. ***(McDonnell Douglas via Cockle)***

STREAK EAGLE

The "Streak Eagle" set numerous time-to-climb records previously held by a Navy F-4B and the Soviet Union. Unlike the F-4B, the "Streak Eagle" was specially modified, but its records were still very impressive. Here, Air Force and McDonnell Douglas personnel prepare the hold-back device that was implanted in the runway at Grand Forks AFB, North Dakota, especially for "Streak Eagle" flights. (Slowiak)

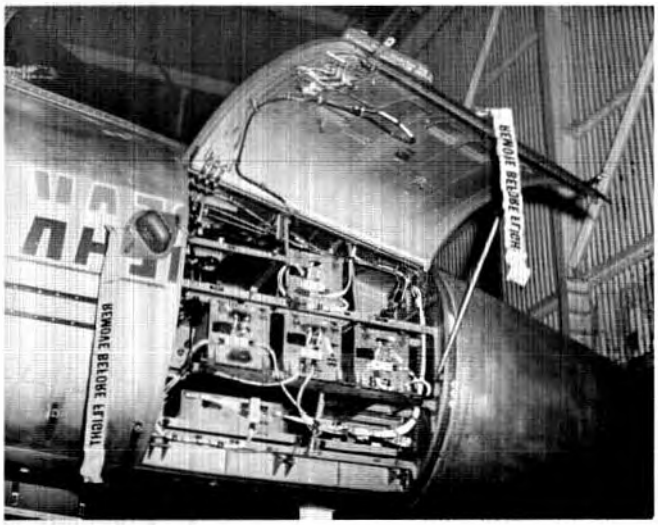
To dramatize the F-15's remarkable performance and power, the Air Force modified F-15A, 72-119 for making attempts to break existing time-to-climb records then held by a Navy F-4B and a Soviet aircraft that was an extensive modification of the MiG-25. On January 16, 1975, all of the F-4 records were broken. These were at the lower altitudes of 9,843, 19,685, 29,528, 39,370, and 49,212 feet. It should be noted that the F-15 used in setting these records, named the Streak Eagle, was not a stock production airframe. It carried no armament, not even the gun, and was not painted. The F-4 that held the previous record was a stock aircraft, and carried Sparrow missile armament. However, this does not lessen the Streak Eagle's records, and it should be noted that the records were all bettered by a considerable margin.

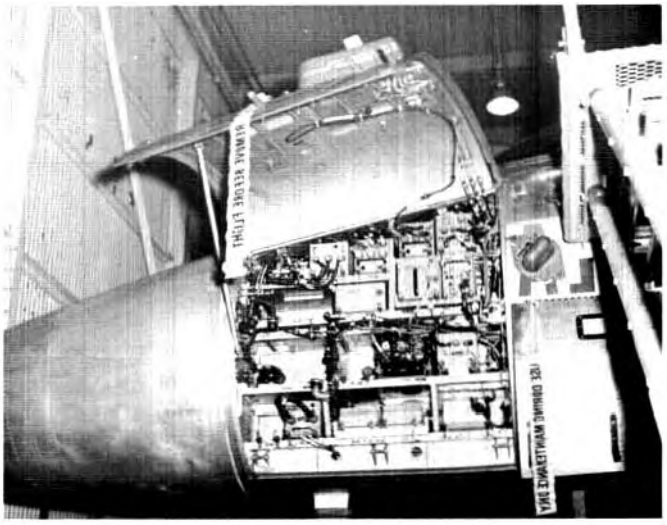
On January 19, Major Roger Smith broke the first of the Soviet records, climbing to 65,617 feet in 122.94 seconds. This considerably bettered the Soviet mark of 169.8 seconds. On January 26, Major Dave Peterson flew to 82,021 feet in 161.02 seconds, and on February 1, Major Smith again flew the Streak Eagle, this time to 98,425 feet in 207.80 seconds. The other pilot involved in the record breaking flights was Major W.R. MacFarlane, who broke the records at 19,685, 29,528, and 39,370 feet. The aircraft has now been placed on display at the Air Force Museum at Wright-Patterson AFB, in Dayton, Ohio.

Major W. R. MacFarlane broke three of the altitude records in the Streak Eagle. (McDonnell Douglas)

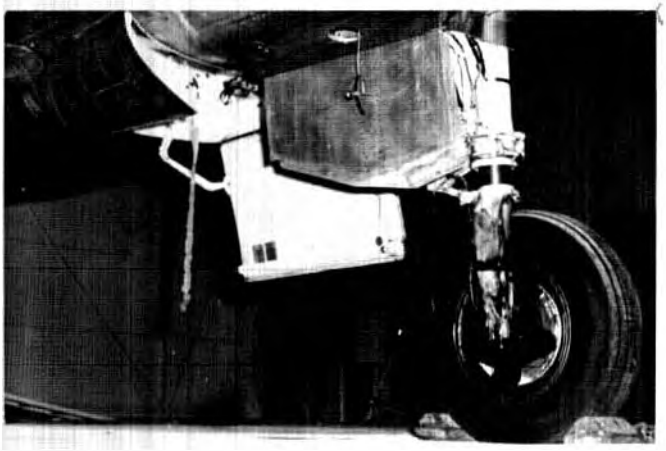
Major D. W. Peterson flew to 82,021 feet in 161.021 seconds on January 26, 1975. This broke the previous record by over thirty seconds. (McDonnell Douglas)

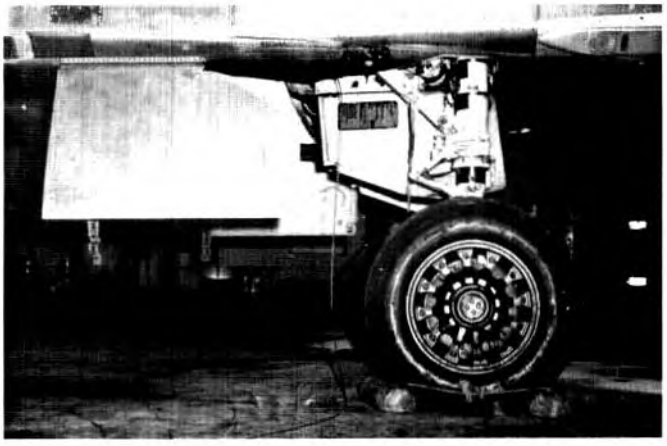
"STREAK EAGLE" DETAILS





These two photographs show the electronic boxes in the nose of the "Streak Eagle." *(Slowiak)*

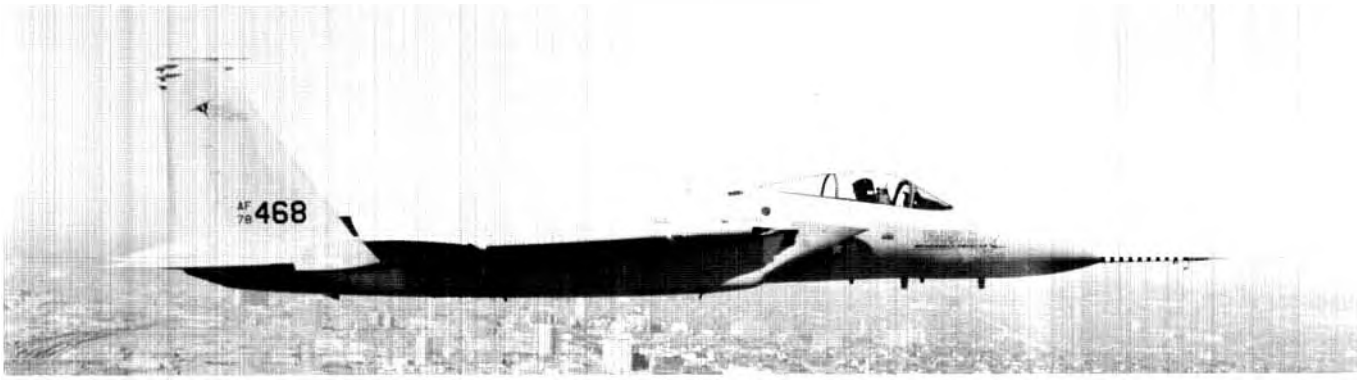




Main landing gear detail on the "Streak Eagle." Like early F-15s, but unlike later production aircraft, the forward main gear doors were open when the aircraft was on the ground. The right main landing gear is shown in the left photo, and the right photo shows the inside detail of the left main landing gear. *(Slowiak)*

Views of the left and right vertical tails show different antenna probes on top of the tails than found on production aircraft. A "Streak Eagle" insignia was on the tail, but has been removed. Its location is revealed by the lighter circular area near the bottom where it was cleaned off the bare metal. *(Slowiak)*

F-15C/D



780468 was the first F-15C. ***(McDonnell Douglas)***

The second generation of Eagles followed the F-15A and -B into operational service in 1979. Plans call for the F-15C and two-seat -D to equip all of the Air Force's tactical fighter squadrons. F-15A and -B aircraft are being reassigned to fighter interceptor squadrons as they are replaced with the newer versions.

The F-15C/D shows very little external change from earlier Eagles. The larger and stronger main gear wheels and tires are the most noticeable of the changes, and, from any distance, the only way to tell the F-15A from an F-15C or an F-15B from an F-15D is to check the serial numbers.

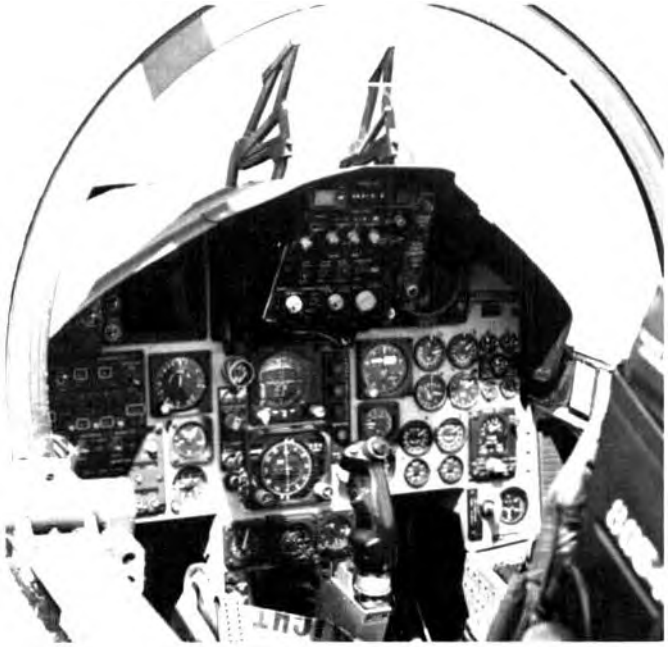
Inside, and not so visible to the eye, are a number of differences. The F-15C/D has an additional internal fuel capacity of 1,855 pounds over the F-15A/B, and provisions are included for carrying conformal fuel pallets. There is a 12,000 pound increase in maximum gross take-off weight, and it is this weight that necessitates the larger and stronger main gear wheels and tires.

F-15C/D aircraft based at Langley AFB, Virginia, and assigned to the Rapid Deployment Force, received the first production set of conformal fuel pallets during the summer of 1983. These tanks add nearly 10,000 pounds of fuel to increase range and flexibility. Seventy-five sets of tanks will be provided to Eagles assigned to the RDF, and bomb racks will also be supplied.

Other improvements inside the F-15C/D include a radar programmable processor, and the F-15C/D Multi-Staged Improvement Program will add still more improvements. Provisions for the AMRAAM air-to-air missile will be added. The radar's memory will be expanded to one million words (1000 K), and its processing speed will triple to 1.4 million operations per second. There will also be a twenty-five percent increase in reliability. The MISP radar will contain fewer parts and one less system unit as compared to the present unit.

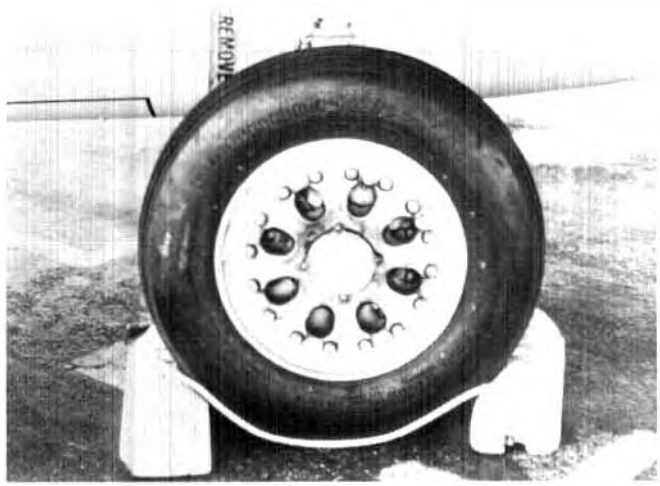
Another improvement will be made to the armament control system. A multi-purpose color video screen will replace the current armament control panel in the cockpit. This screen will be linked to a computer, and will be programmable. Other improvements will be made to the electronic countermeasures' systems and the command and control communications.

The question has often been raised as to whether all of this sophistication is really necessary. A lady reporter asked President Reagan why the U.S. had to put all of these expensive systems in the F-15 when the Israelis successfully flew the F-15 in combat without these systems that increase the cost of an aircraft. This is one of many examples where the press shows its amazing ignorance about military matters. President Reagan stated that our pilots deserve the very best in equipment when they went into combat. While this is certainly a valid concept (but too often not the case in reality) the President missed the main point. The Israelis at that time were engaged in combat with the Syrians, and were having their way with them. But the aircraft, defense systems, and weapons possessed by the Syrians do not begin to match the sophistication, diversification, quality, or quantity that would be faced by U.S. pilots in a conflict with Soviet forces. Nor are the Syrians as capable at operating their equipment as are the Soviets. The fighting in the Middle East cannot be compared to what would be faced in a confrontation with the Soviets. The air defense over Vietnam that was faced by our pilots was said to be the most formidable in history. Yet it was nothing compared to the Soviet arsenal that boasts a wide variety of missiles, guns, guidance systems, and radars. The reporter asking President Reagan that question showed a complete lack of understanding in this matter, and so do many of today's politicians. Are all of these expensive systems needed? Ask any pilot who would have to fly in any conflict with the Soviets. Like the ad for an expensive television says, they are "darn well worth it."



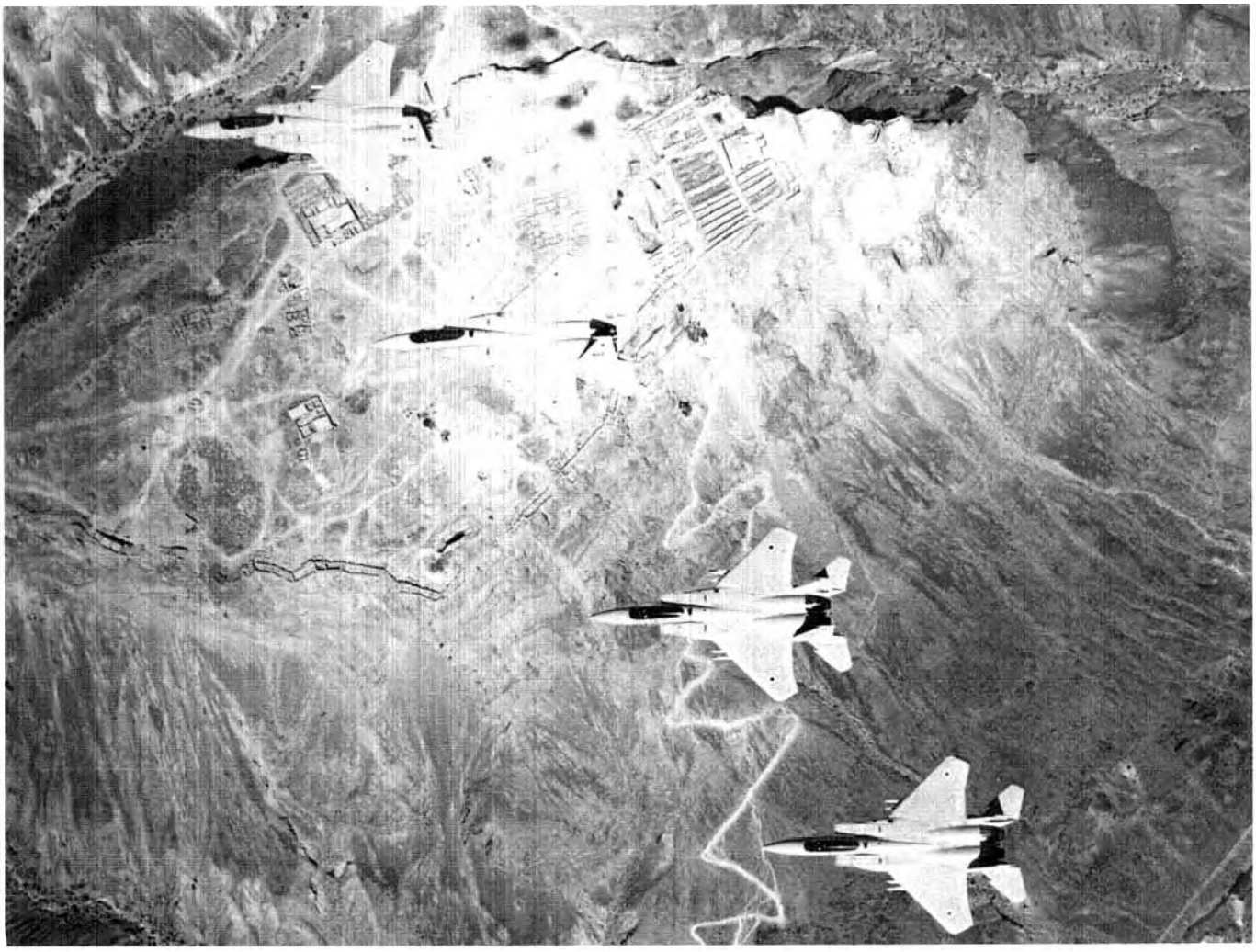
These two photos show the details of the F-15C instrument panel. It is practically the same as that in the F-15A. The fuel quantity gages have a higher maximum reading since the F-15C carries more fuel.

Left and right consoles in the F-15C are shown here. Again, there is little if any difference from that found in the F-15A.



The most noticeable external physical difference seen on the F-15C and -D is the main landing gear. The wheel is a different design and is stronger than that on the F-15A and -B. It is also slightly wider. Compare these photos to the ones on pages 18 and 19. The heavier gross weight of the F-15C and -D required the stronger gear. At right is an example of how elaborate some "beautification projects" are on William Tell aircraft. Note the raised white letters and the F-15 Eagle marking in the center of the wheel.

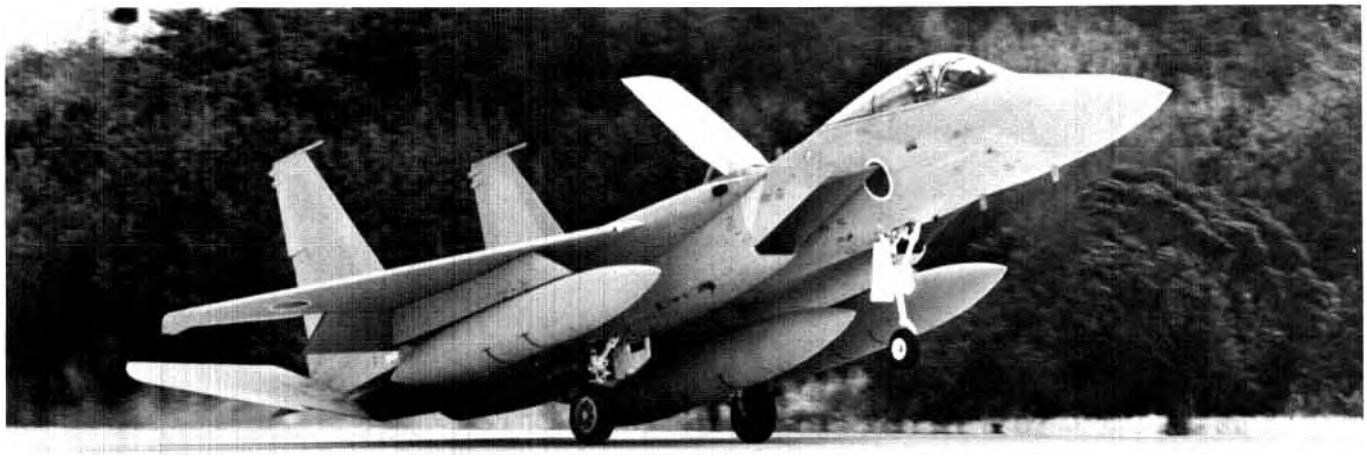
FOREIGN EAGLES



Above: Four Israeli F-15s fly over the ruins of Masada. Israel is the only user of the Eagle that has used the aircraft in combat. (McDonnell Douglas)

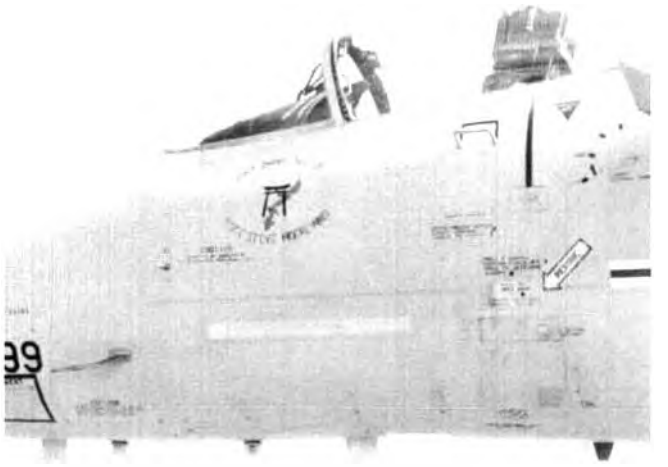
Left: A fully armed Israeli F-15A. (McDonnell Douglas)

Below: With three external tanks, this Japanese F-15A touches down. In addition to Israel and Japan, Saudi Arabia has also ordered the Eagle.

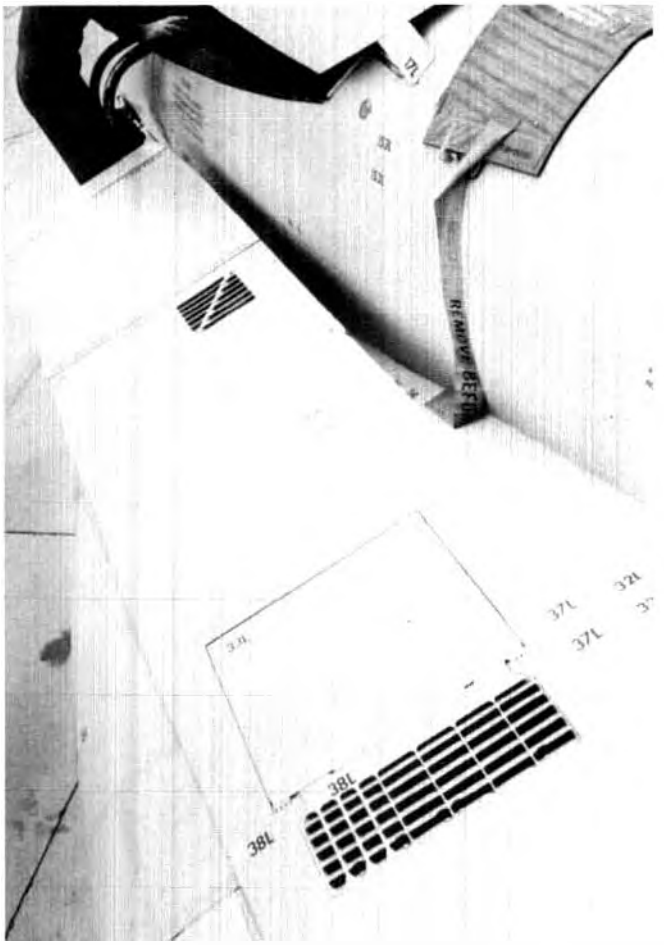


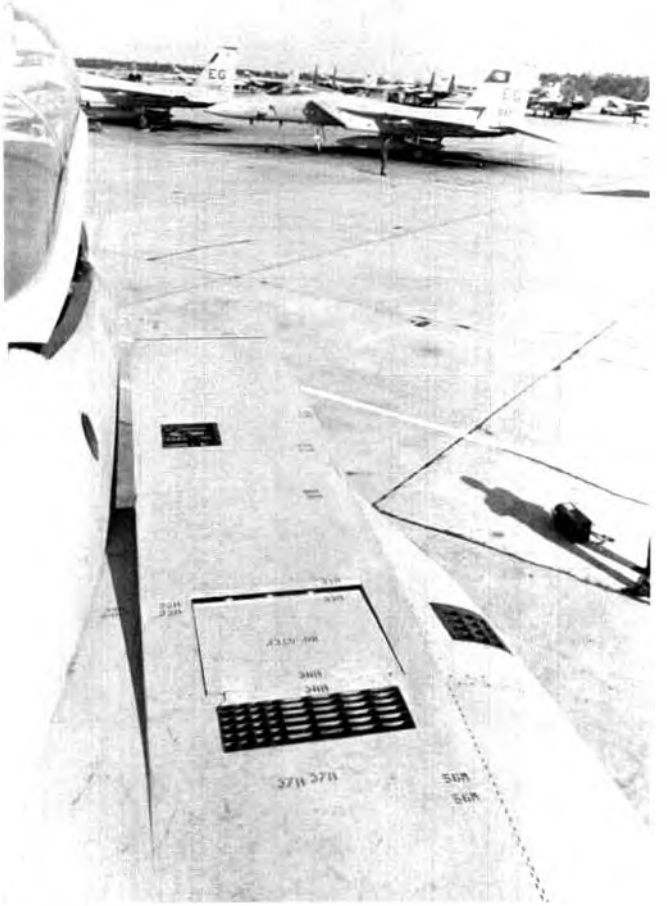
F-15 WALK-AROUND

This head-on view shows the F-15A's stance on its landing gear. (Cockle)



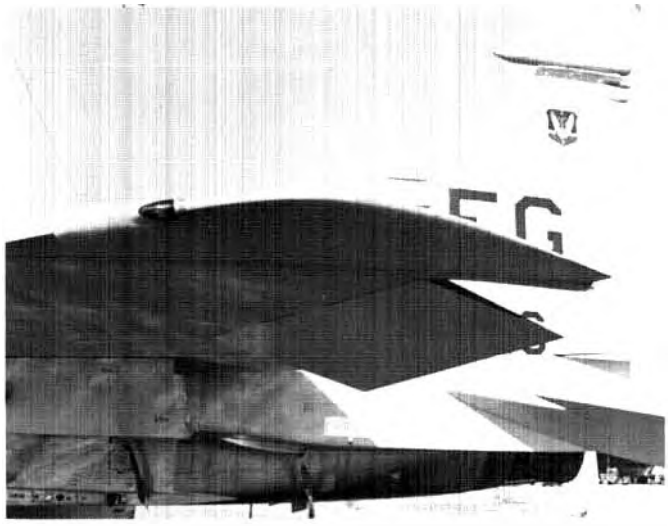
The details on the left side of the nose are seen here. Note the pitot probe, formation light panel, open handle below the canopy, and antennas under the fuselage.



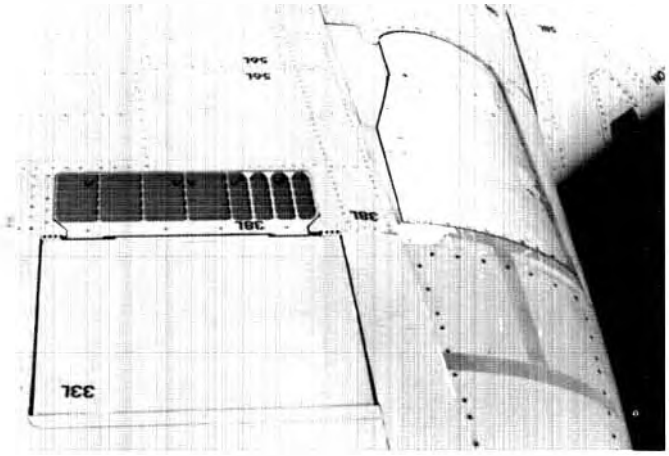


These photos show the top of the intake ramps. The bypass doors and vents are visible. Also note the slight taper at the leading edge of the ramp.

The top of the right wing is shown here. There are no moveable slats or flaps on the leading edge. There is a red light on the leading edge of each wing near the fuselage.

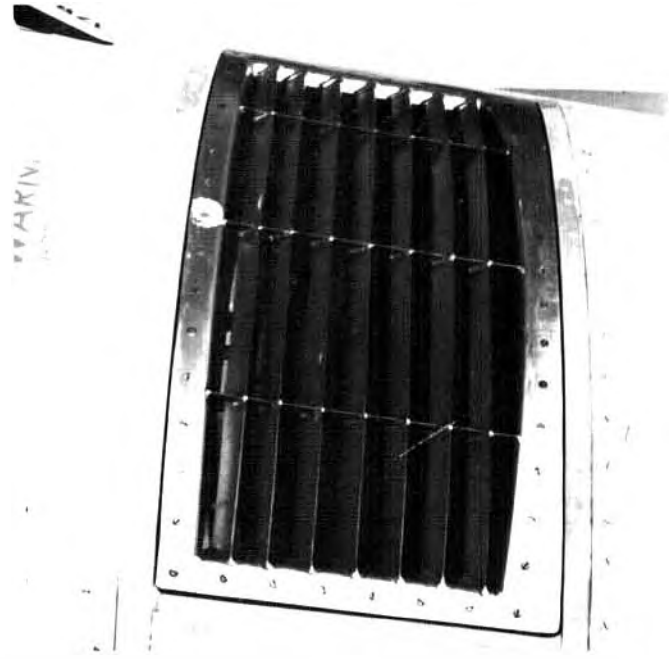


The wing tip detail on the left wing is seen in this view. The white capped probe is part of the Radar Homing and Warning (RHAW) gear, and a position light is located just outside of it.



The in-flight refueling receptacle is located next to the leading edge of the left wing. In this view looking aft, the receptacle is shown in the closed position.

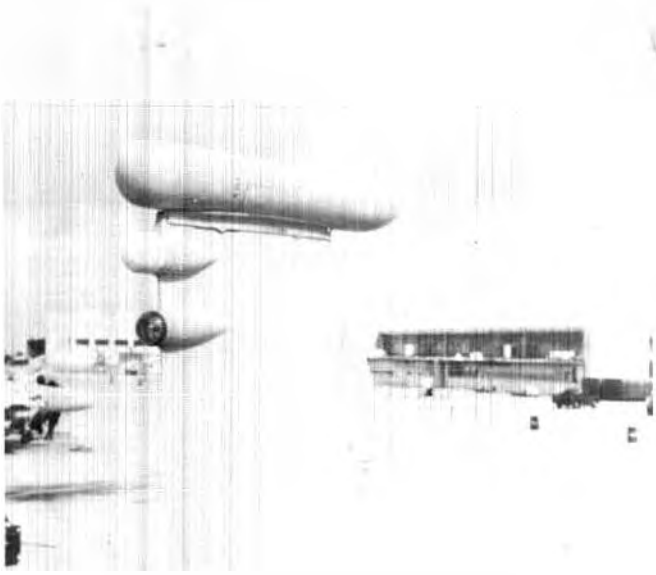
A test panel is located under the left intake. The crew chief has his interphone connection here, and he can make various checks with the engine running prior to flight.



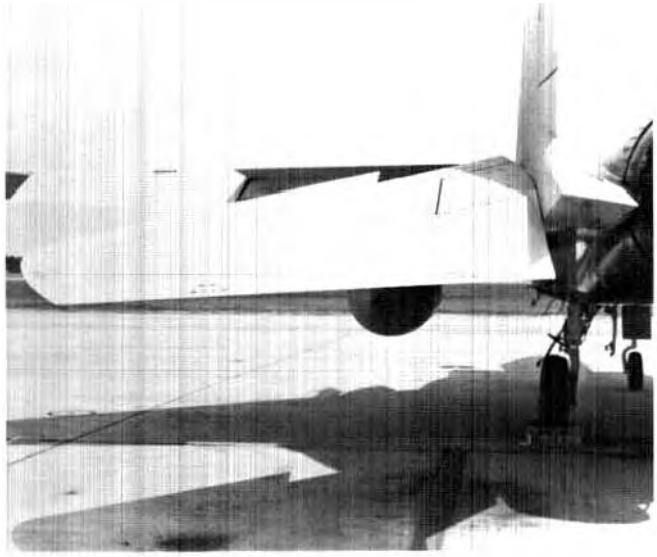
This vent is located just behind the canopy. It exhausts heat from the forward avionics bays.

The receptacle is shown open in this view.

These two views show the flaps and ailerons in the lowered position. It is rather unusual to see them both lowered when the aircraft is parked.

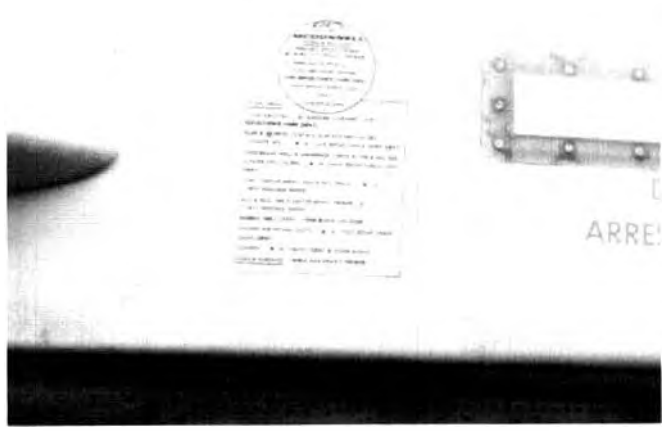


These two views show the tops of the two vertical tails as seen from the inside. Each vertical tail is topped with an antenna probe which is part of the ECM equipment. On the trailing edge of each tail is another ECM antenna, and under that is a position light.

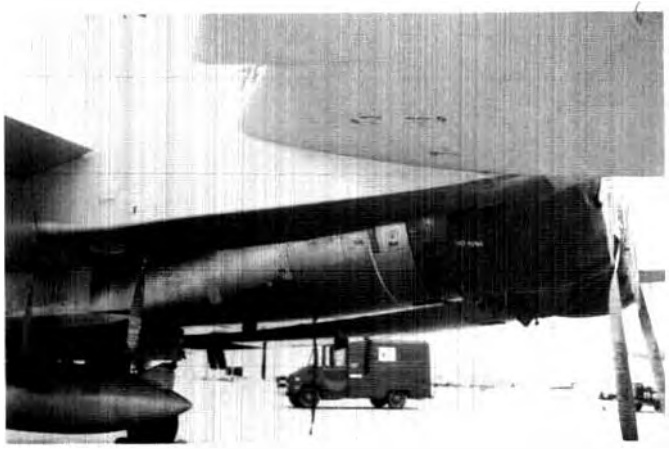


The two stabilators are shown in these photos. Note the walkway and "no step" markings.

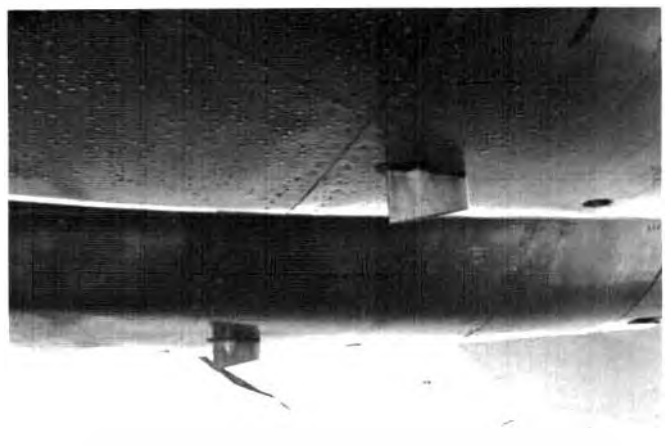
The forward formation light panel is seen on the right side under the canopy.



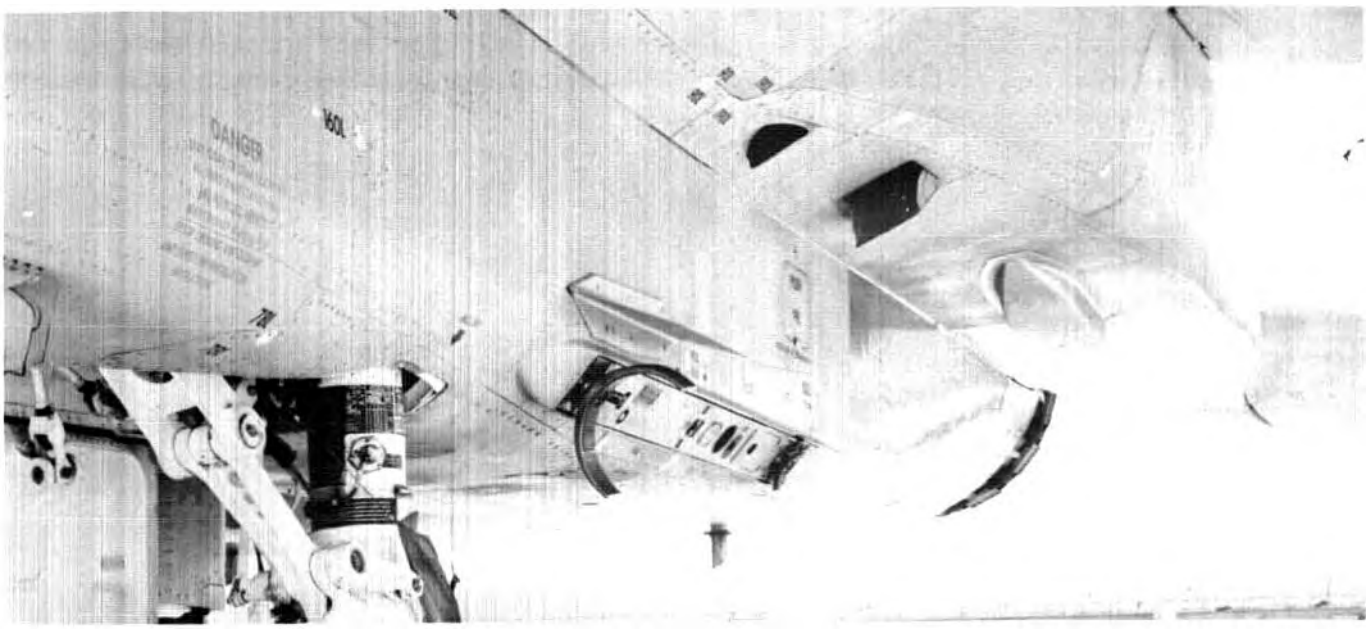
Just ahead of the right stabilator is this data panel. It gives the painting information for the aircraft.



The fuselage skin on the underside around the engines is bare metal with two small painted areas.



Under the engines are two small vents that drain excess fuel from the engines after shutdown.

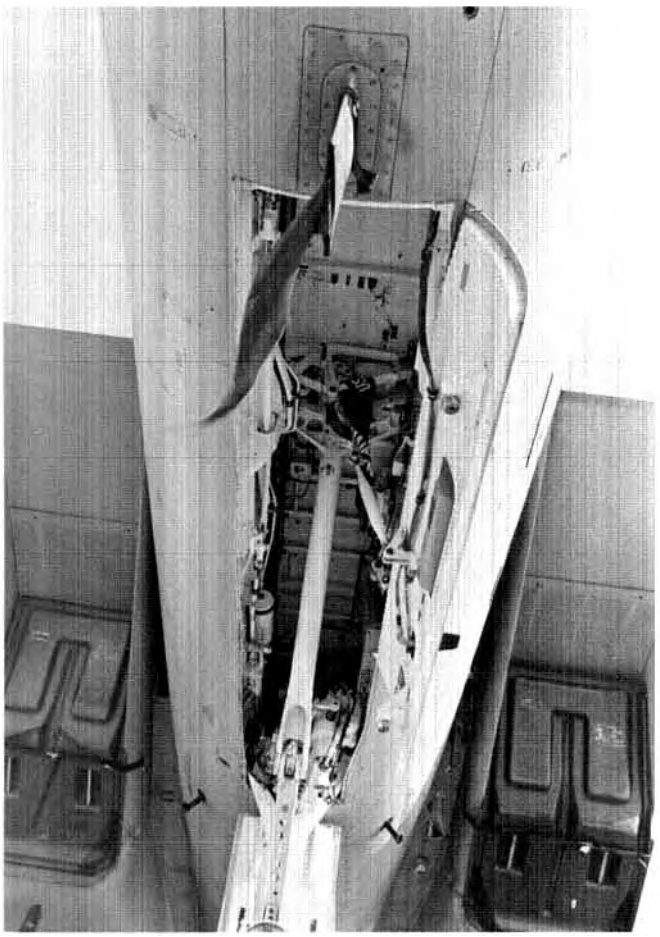


View looking aft at the compound curves of the rear fuselage under the left wing. Visible in this photo is the fuel heat exchanger intake that opens and closes as a function of mach number to provide cooling air to cool the fuel which in turn cools the aft avionics. Directly behind it is the exhaust for the fuel heat exchanger.(Cockle)

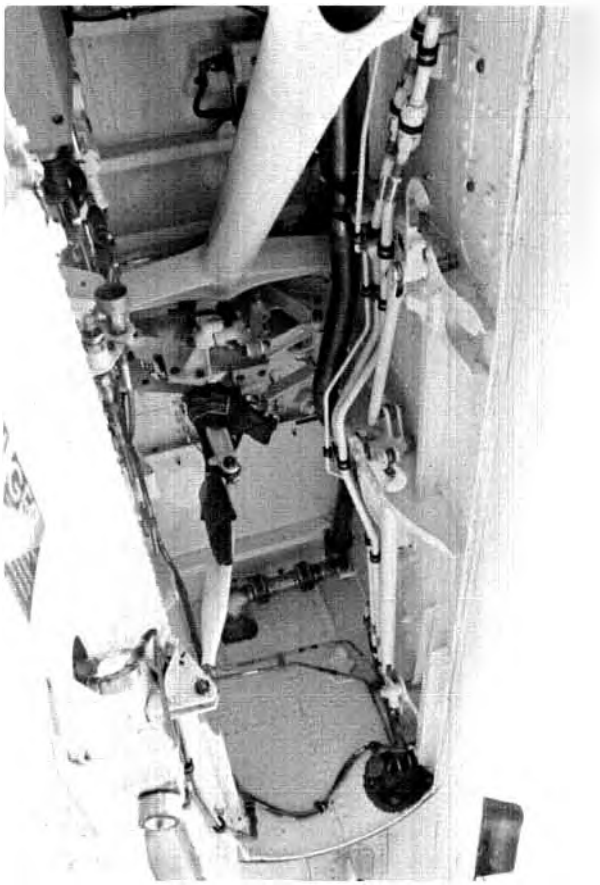
NOSE LANDING GEAR

Nose gear from the right front.

This view shows the nose gear and boarding steps. Note the two lights on the gear struts, and the lack of a torque link. There is a brace between the strut and aft door. *(Cockle)*



Nose gear well looking aft.

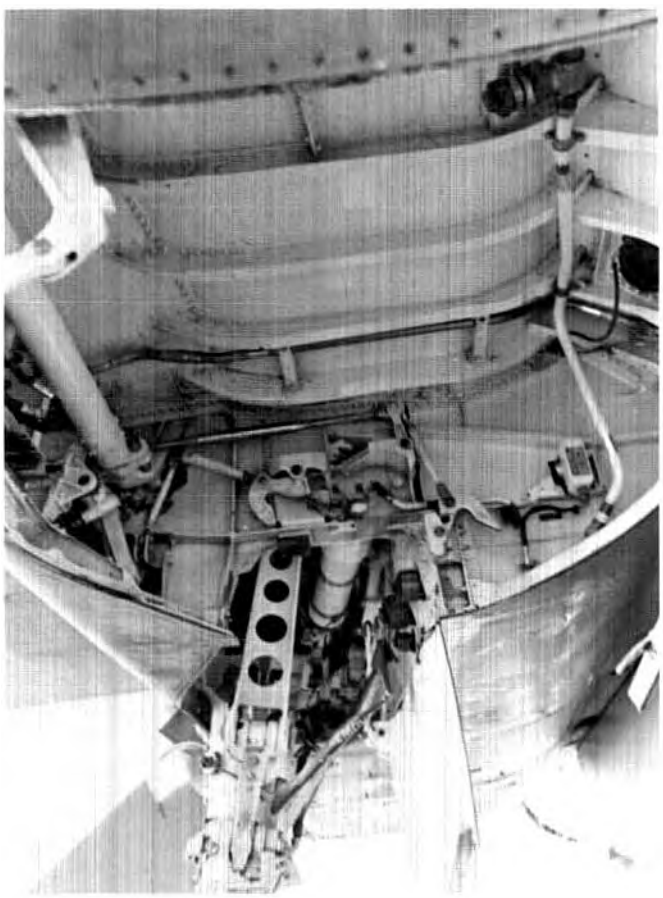


View looking forward into the nose gear well.

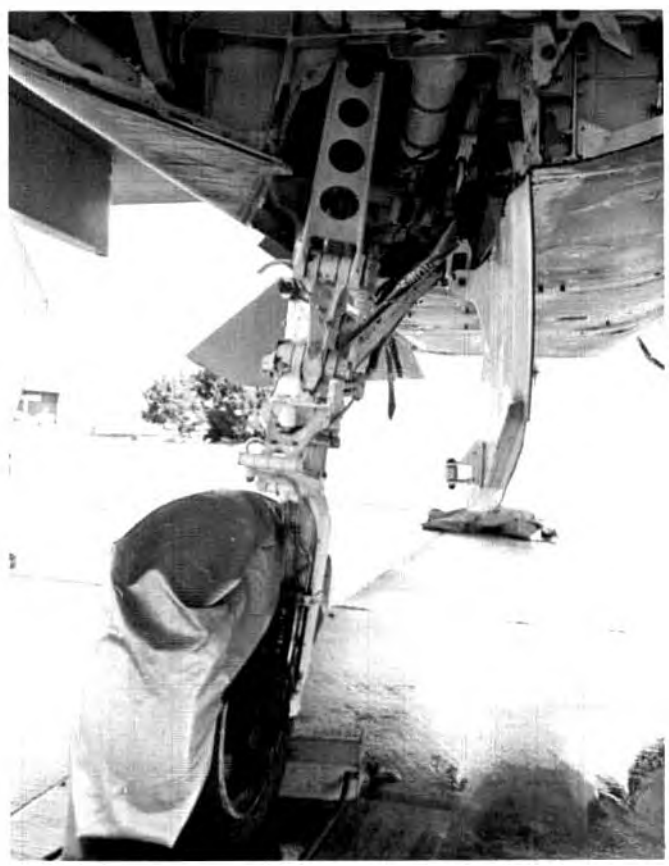
RIGHT MAIN LANDING GEAR

Right main gear on an F-15A is viewed from the outside.

Inside view showing hydraulic lines.



Forward portion of right main gear well looking to the rear. Usually, the doors that cover this part of the well are closed when the aircraft is on the ground.



View looking to the rear with all doors open.

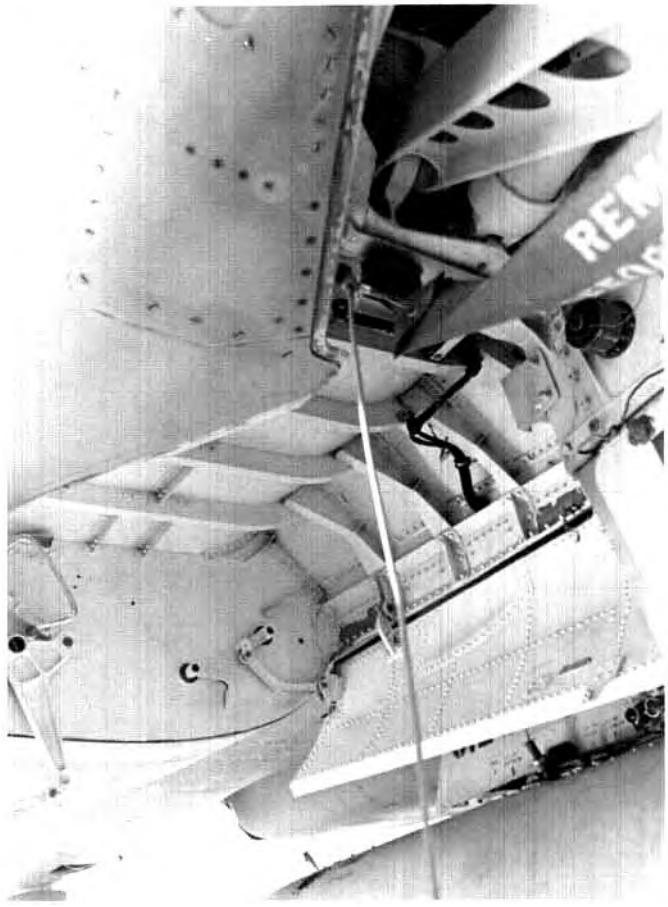
LEFT MAIN LANDING GEAR

Above left: Left main landing gear as seen from the outside.

Above right: Left main gear viewed from the front.

Below left: Forward portion of the left main landing gear well looking aft.

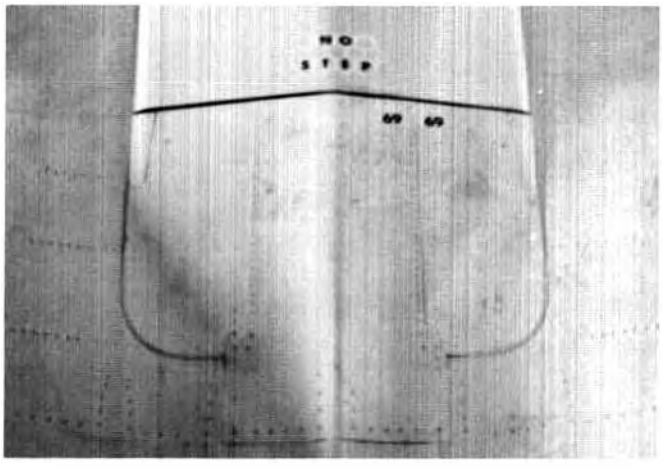
Below right: Forward portion of the left main gear well looking forward and inboard.



SPEED BRAKE DETAIL

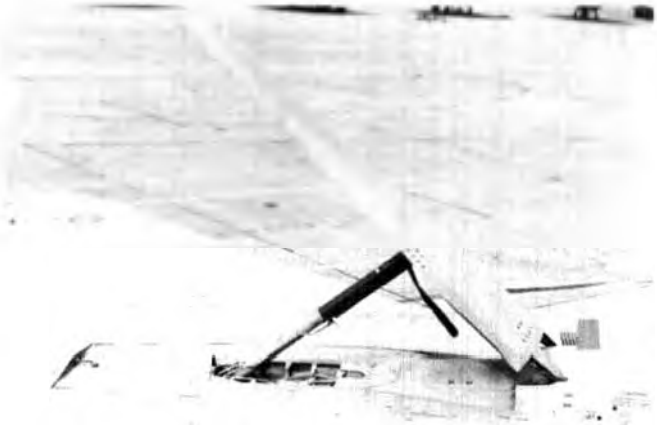
F-15A, 770096, lands with the larger production speed brake in the open position. (Cockle)

The speed brake as seen in the open position from behind.

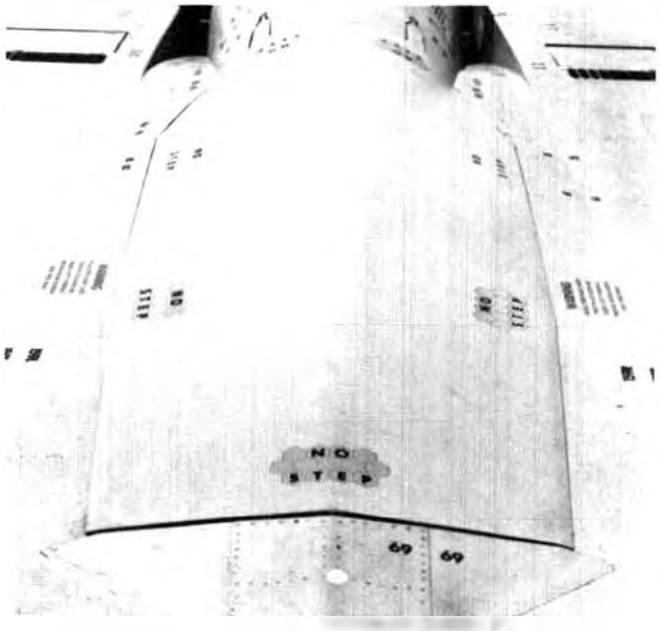


The fairing directly behind the speed brake is seen in this photo. The line that marks the rear end of the speed brake is clearly visible in this photo. This is the design used on the F-15A and -B. (Johnson)

The small original speed brake is shown here in the open position on landing. (McDonnell Douglas)



Open speed brake as seen from the right. Note that the brake closes down flush on top of the aircraft rather than fitting down into a well.

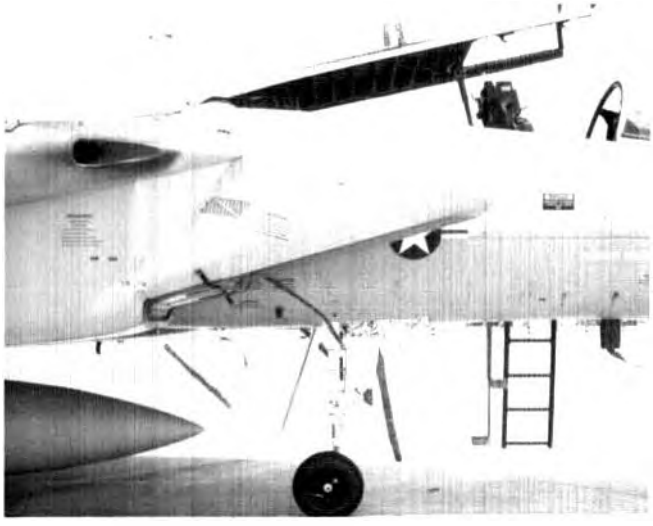


The closed brake is seen from behind on this F-15C. Note that the fairing behind the brake is different from that shown at left.

INTAKE DETAIL

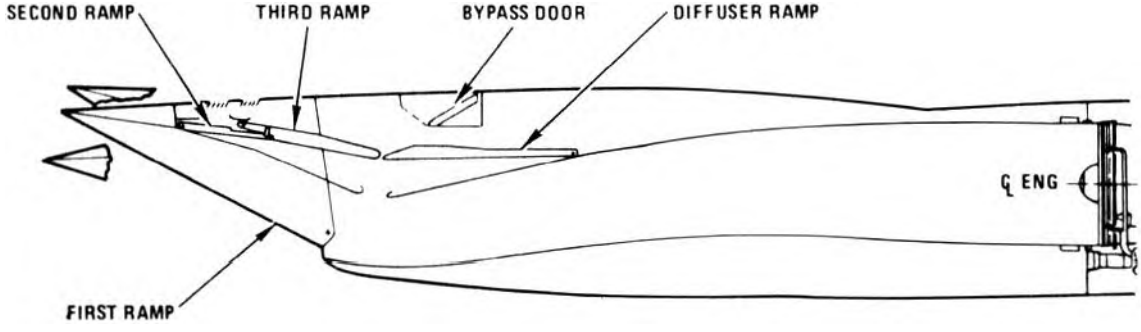
Looking at the right ramp from the front.

Left intake ramp in the up position. Note the lighter gray area at the hinge-point.



Right ramp in the down position.

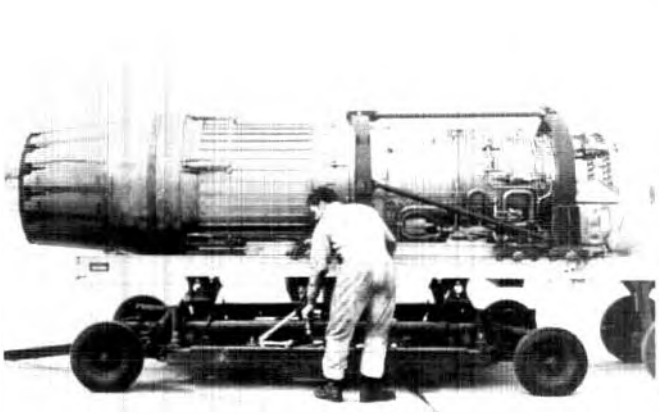
Left ramp in the down or lowered position. The ramp drops to this position when the engine is started.



Jet engines require a lot of fuel. They also require a lot of air, and it must be at a subsonic speed when it enters the engine. Therefore, supersonic jet aircraft are fitted with cones, splitter plates, or ramps to control the air flow that enters the engines.

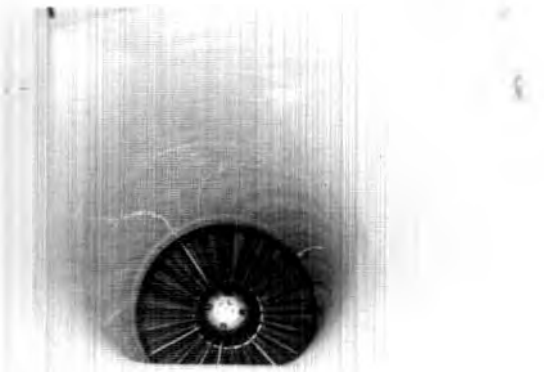
The F-15 has variable ramps which provide an optimum subsonic flow of air. The position of these ramps is controlled by an air inlet controller. This controller uses Mach number and angle of attack, as well as other data to automatically position the ramps and bypass door to provide the best flow of air. The purpose of the bypass door is to bleed off excess pressure in the intake duct. When the aircraft is at high angles of attack, such as during take-offs and landings, the intakes will be in the lowered position as shown in the two lower photos at the top of this page.

ENGINE

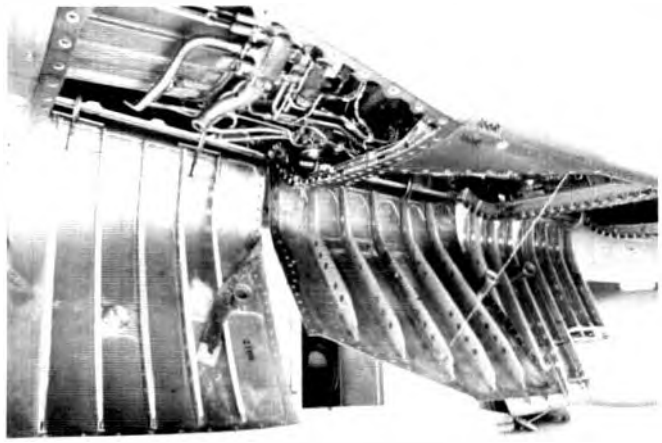


Right side of the engine as seen after removal from the aircraft.

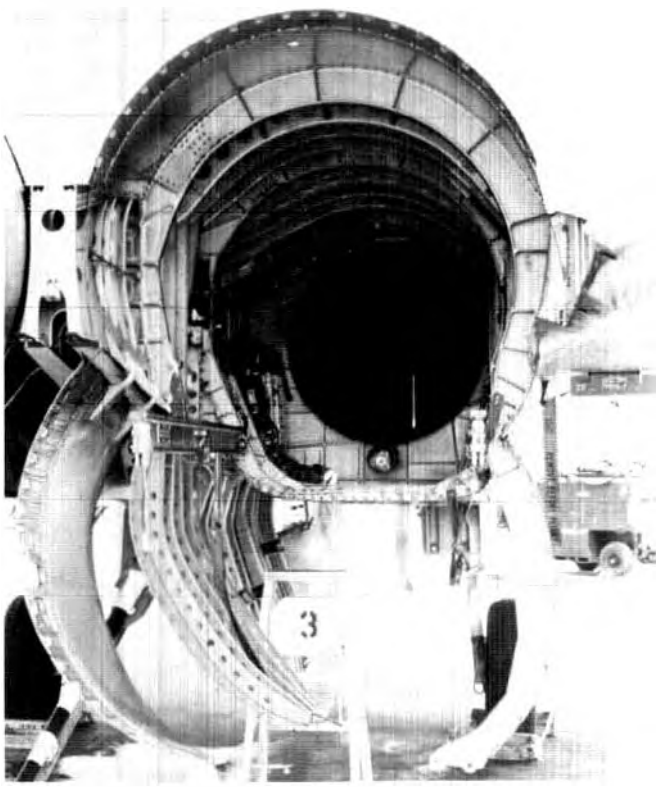
Left side of the engine. A protective cover is over the compressor blades.



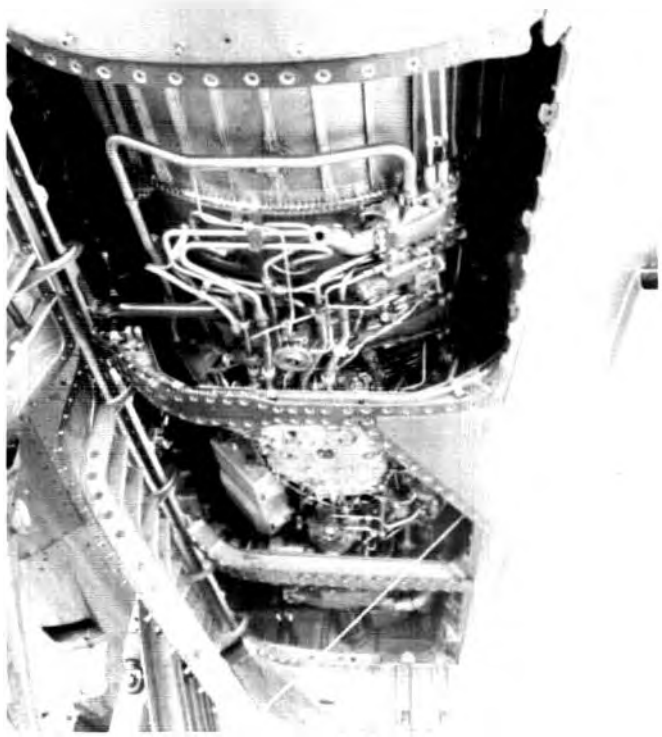
Looking down the intake to the engine. The area inside the intake and behind the movable ramp is painted white.



Open access panels under the right engine as seen from the right.

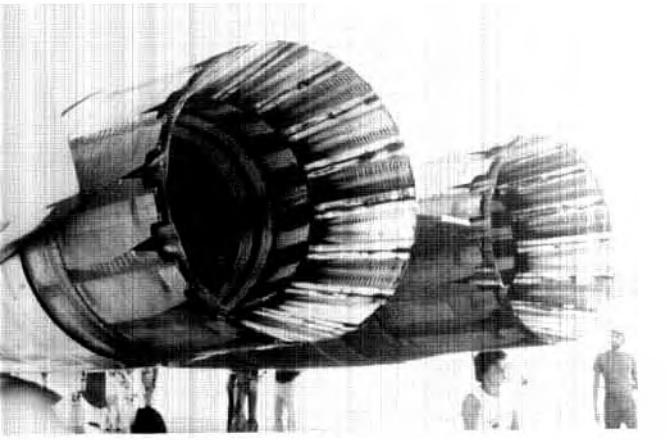


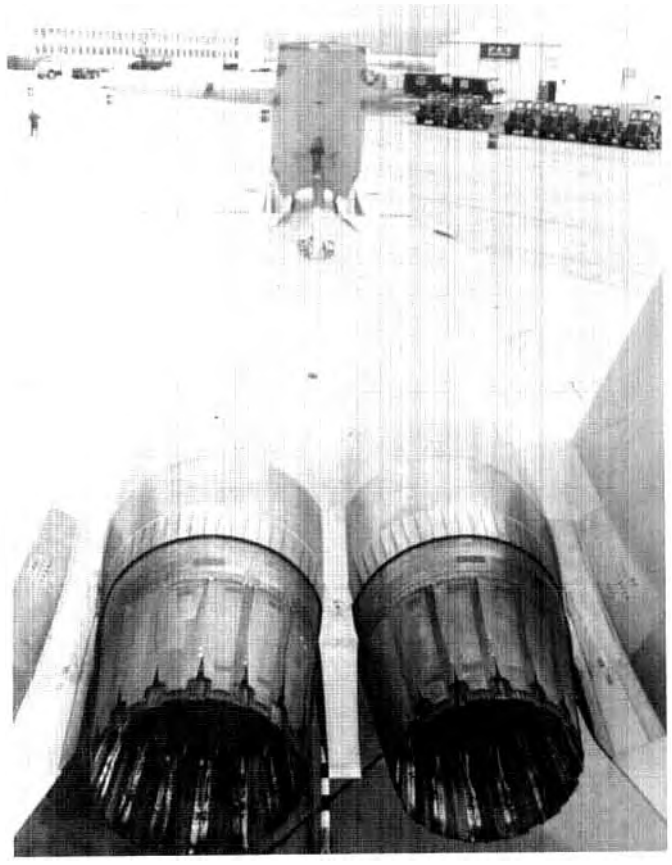
Right engine bay with the engine removed.



Open access panels under the right engine. This view is looking forward.

"TURKEY FEATHERS"

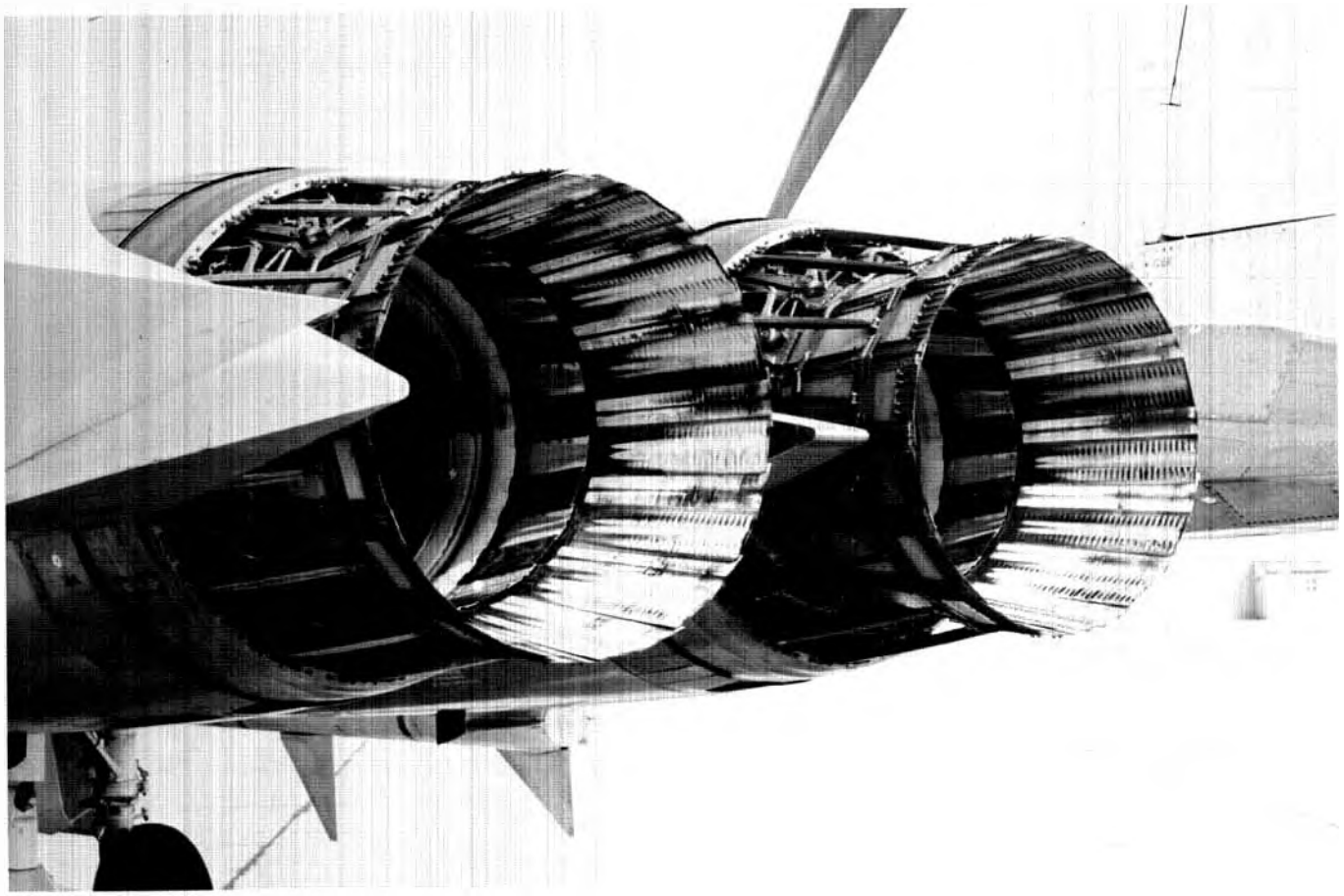




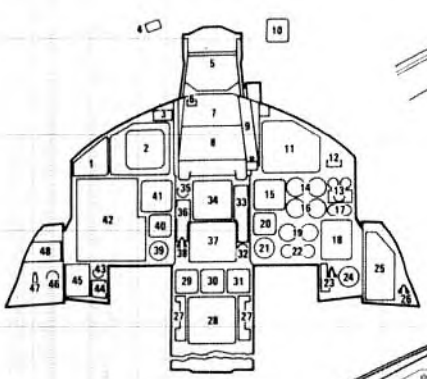
Above: Originally, the variable position nozzles on the afterburners were covered with metal plates as shown here. These plates were known as "turkey feathers."

Right: Nozzles as seen from above with the "turkey feathers" in place.

Below: After the "turkey feathers" caused problems, the solution was simple - they were removed. This revealed an intricate network of levers and rods which are shown in the photo. The photo was reproduced as large as possible to show details. *(Cockle)*



F-15B FRONT COCKPIT



1. FIRE WARNING/EXTINGUISHING PANEL
2. VERTICAL SITUATION DISPLAY (VSD)
3. RADIO CALL PANEL
4. AIR REFUELING READY LIGHT
5. HEAD UP DISPLAY COMBINING GLASS
6. MASTER CAUTION LIGHT
7. MAIN COMMUNICATIONS CONTROL PANEL
8. HEAD UP DISPLAY CONTROL PANEL
9. GUN SIGHT CAMERA CONTROL PANEL
10. STANDBY MAGNETIC COMPASS
11. TEWS DISPLAY UNIT
12. CANOPY UNLOCKED WARNING LIGHT
13. HYDRAULIC PRESSURE INDICATORS
14. ENGINE TACHOMETERS
15. ALTIMETER

16. FAN TURBINE INLET TEMPERATURE INDICATORS
17. ENGINE OIL PRESSURE INDICATORS
18. FUEL QUANTITY INDICATOR
19. ENGINE FUEL FLOW INDICATORS
20. VERTICAL VELOCITY INDICATOR
21. EIGHT DAY CLOCK
22. ENGINE EXHAUST NOZZLE POSITION INDICATORS
23. JET FUEL STARTER CONTROL HANDLE

24. CABIN PRESSURE ALTIMETER
25. CAUTION LIGHTS PANEL
26. EMERGENCY VENT CONTROL HANDLE
27. CIRCUIT BREAKER PANELS
28. COCKPIT COOLING AND PRESSURIZATION OUTLET
29. STANDBY AIRSPEED INDICATOR
30. STANDBY ATTITUDE INDICATOR
31. STANDBY ALTIMETER
32. RUDDER PEDAL ADJUST RELEASE KNOB
33. MASTER MODE CONTROLS/MARKER BEACON PANEL
34. ATTITUDE DIRECTOR INDICATOR
35. EMERGENCY JETTISON SWITCH
36. STEERING MODE PANEL
37. HORIZONTAL SITUATION INDICATOR
38. EMERGENCY BRAKE/STEERING CONTROL HANDLE
39. ACCELEROMETER
40. ANGLE OF ATTACK INDICATOR
41. AIRSPEED/MACH INDICATOR
42. ARMAMENT CONTROL PANEL
43. PITCH RATIO INDICATOR
44. PITCH RATIO SELECT SWITCH
45. LANDING GEAR CONTROL HANDLE
46. FLAP POSITION INDICATOR
47. EMERGENCY LANDING GEAR HANDLE
48. ARRESTING HOOK CONTROL SWITCH

FRONT COCKPIT, LEFT SIDE

(THE COCKPIT OF THE F-15A AND THE FRONT COCKPIT OF THE F-15B ARE THE SAME)

FRONT COCKPIT, RIGHT SIDE

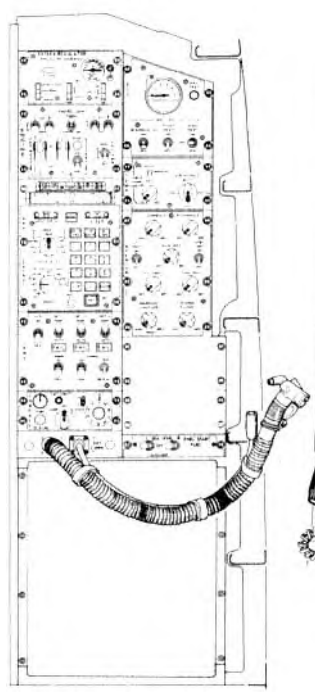
FUSELAGE SIDE

CONSOLE

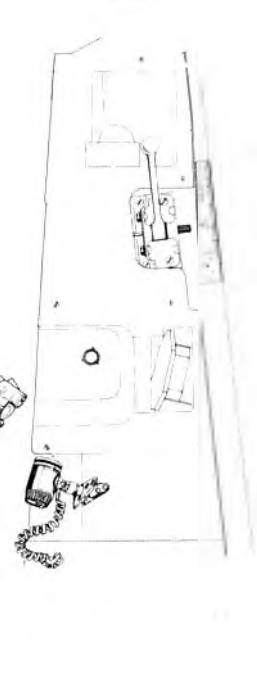
1. ILS/TACAN CONTROL PANEL
2. CONTROL AUGMENTATION SYSTEM CONTROL PANEL
3. BLANK
4. THROTTLE QUADRANT
5. EXTERIOR LIGHTS CONTROL PANEL
6. INTEGRATED COMMUNICATIONS CONTROL PANEL
7. BLANK
8. BLANK
9. ANTI-G PANEL
10. BLANK
11. ARMAMENT SAFETY OVERRIDE SWITCH
12. GROUND POWER PANEL
13. BLANK
14. EMERGENCY AIR REFUELING HANDLE
15. BIT PANEL
16. INTERROGATOR CONTROL PANEL
17. IFF CONTROL PANEL
18. IFF ANTENNA SELECT SWITCH
19. TEWS PANEL
20. SEAT ADJUST SWITCH
21. RADAR CONTROL PANEL
22. VMAX SWITCH
23. BLANK
24. FUEL CONTROL PANEL
25. MISCELLANEOUS CONTROL PANEL
26. CANOPY JETTISON HANDLE

1. OXYGEN REGULATOR
2. ICS PANEL
3. TEMPERATURE PANEL
4. CANOPY CONTROL HANDLE
5. INTERIOR LIGHTS CONTROL PANEL
6. TEWS POD CONTROL PANEL
7. OXYGEN HOSE STOWAGE FITTING
8. BLANK
9. ENGINE START FUEL SWITCHES
10. UTILITY LIGHT
11. VACUUM BOTTLE
12. STOWAGE COMPARTMENT
13. OXYGEN/COMMUNICATION OUTLET PANEL
14. COMPASS CONTROL PANEL
15. TEWS POWER CONTROL PANEL
16. NAVIGATION CONTROL PANEL
17. ENGINE CONTROL PANEL

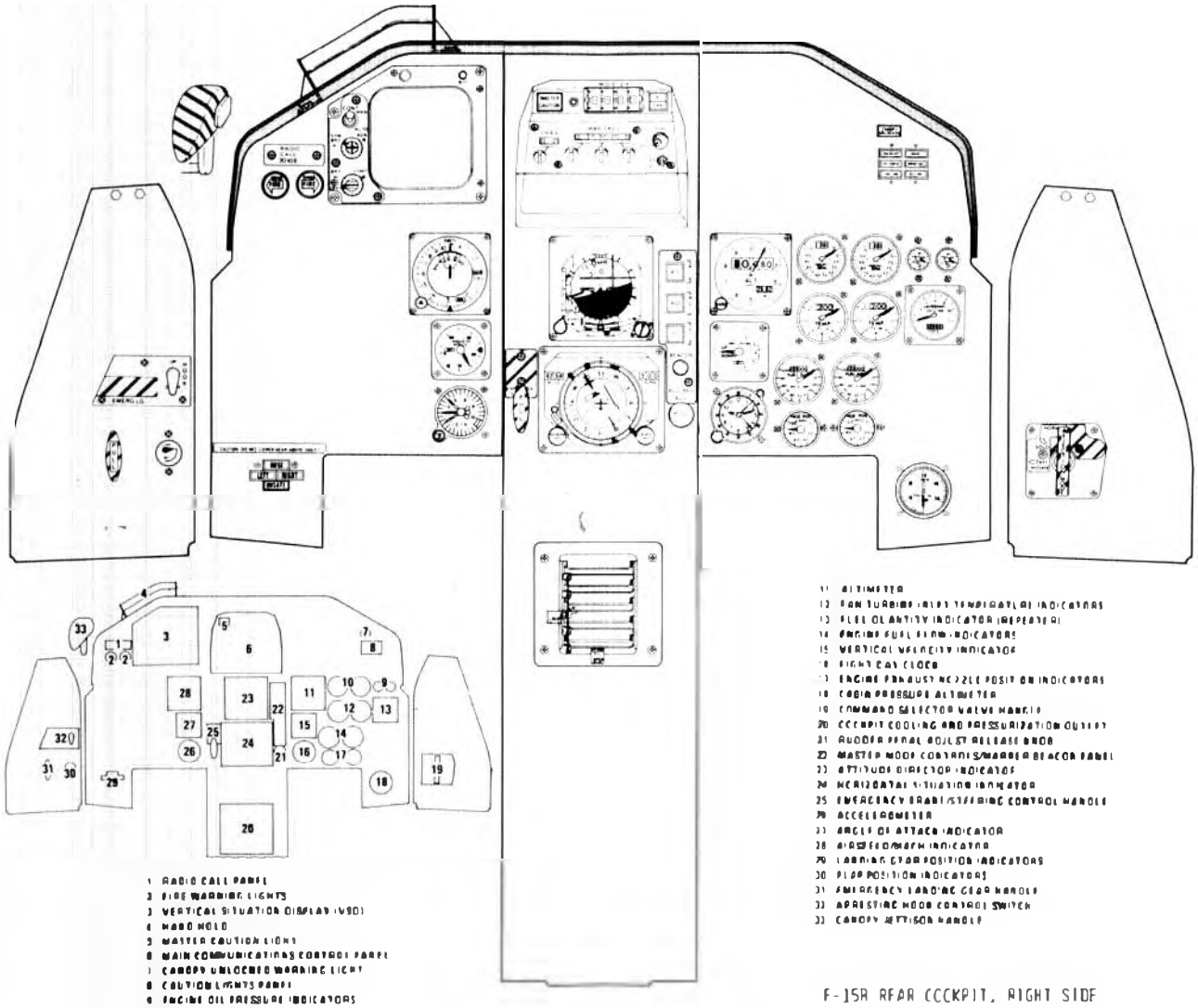
CONSOLE



FUSELAGE SIDE



F-15B REAR COCKPIT

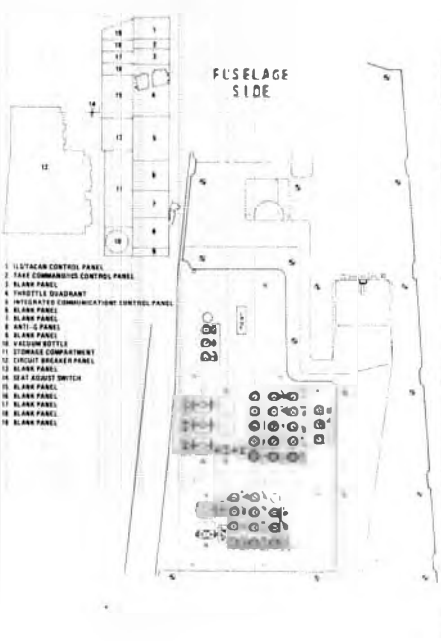


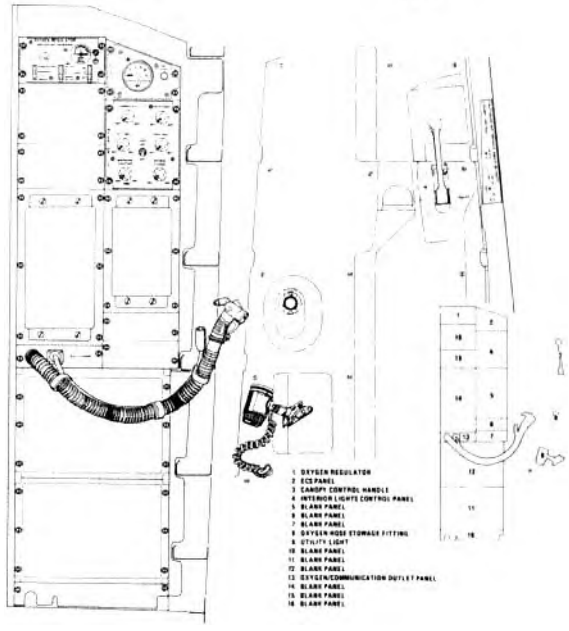
1 RADIO CALL PANEL
2 FIRE WARNING LIGHTS
3 VERTICAL SITUATION DISPLAY (VSD)
4 HUD HOLD
5 MASTER CAUTION LIGHT
6 MAIN COMMUNICATIONS CONTROL PANEL
7 CANOPY UNLOCKED WARNING LIGHT
8 CAUTION LIGHTS PANEL
9 ENGINE OIL PRESSURE INDICATORS
10 ENGINE TACHOMETERS

11 ALTIMETER
12 FAN TURBINE INLET TEMPERATURE INDICATORS
13 FUEL QUANTITY INDICATOR (REPEATER)
14 ENGINE FUEL FLOW INDICATORS
15 VERTICAL VELOCITY INDICATOR
16 EIGHT DAY CLOCK
17 ENGINE EXHAUST NOZZLE POSITION INDICATORS
18 CABIN PRESSURE ALTIMETER
19 COMMAND SELECTOR VALVE HANDLE
20 COCKPIT COOLING AND PRESSURIZATION OUTLET
21 AUDIO PANEL OUTLET RELEASE KNOB
22 MASTER MODE CONTROLS/MARKER BEACON PANEL
23 ATTITUDE DIRECTOR INDICATOR
24 HORIZONTAL SITUATION INDICATOR
25 EMERGENCY BRAKE/STEERING CONTROL HANDLE
26 ACCELEROMETER
27 ANGLE OF ATTACK INDICATOR
28 AIRSPEED/MACH INDICATOR
29 LANDING GEAR POSITION INDICATORS
30 FLAP POSITION INDICATORS
31 EMERGENCY LANDING GEAR HANDLE
32 ARRESTING HOOK CONTROL SWITCH
33 CANOPY JETTISON HANDLE

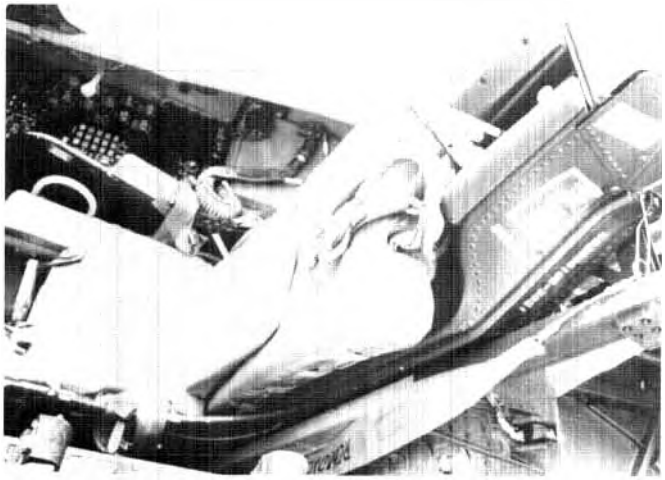
F-15B REAR COCKPIT, RIGHT SIDE

F-15B REAR COCKPIT, LEFT SIDE





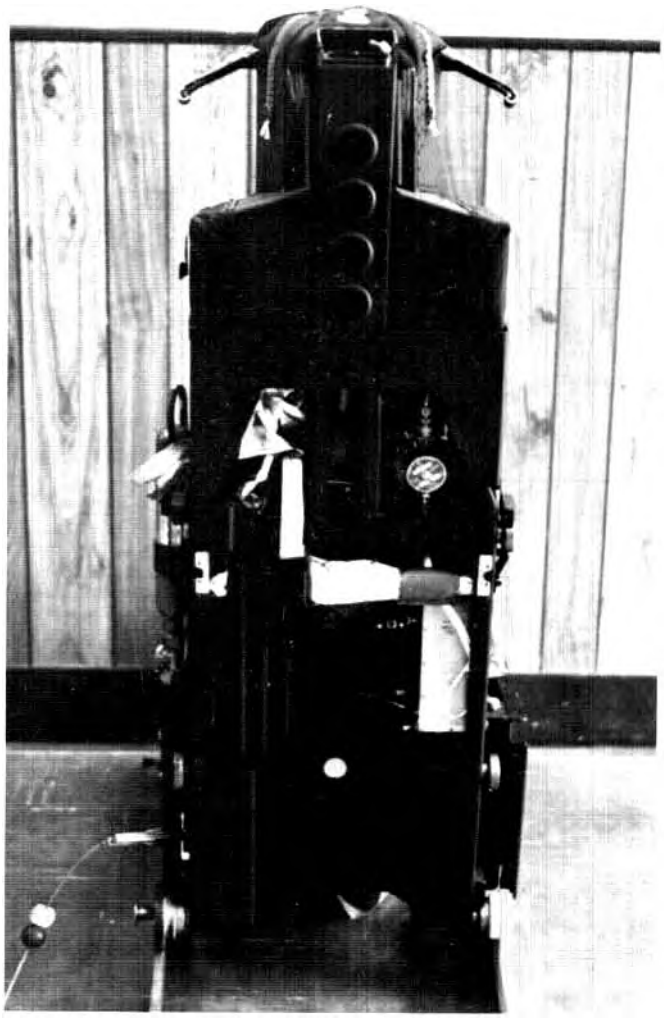
EJECTION SEAT DETAIL



The Escapac ejection seat was originally fitted in the F-15.

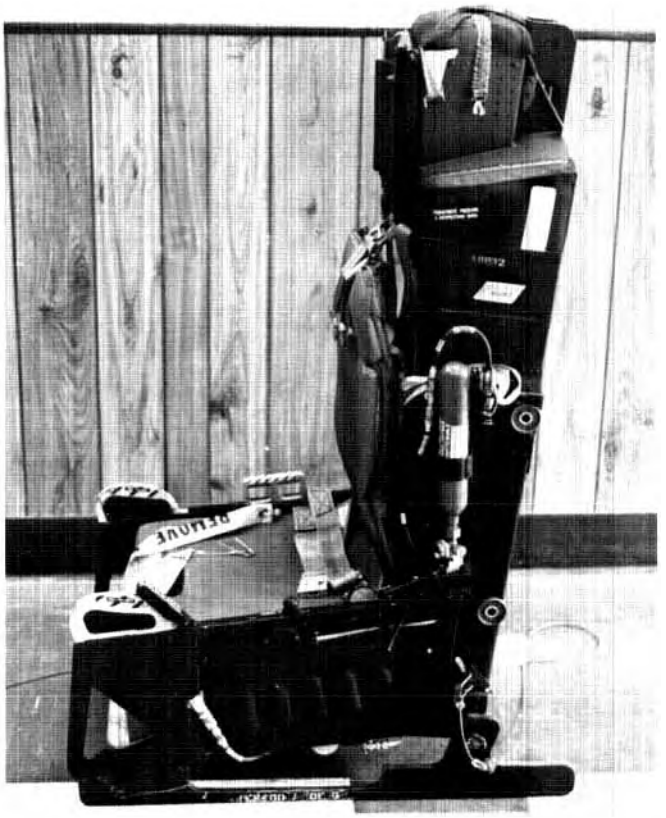
Left: View looking down from the left at the Escapac seat in an F-15B.

Above: Top of the Escapac seat showing the extended head knocker. Note that the serial number of the aircraft is on the seat, and the word "Rear" is printed under it denoting the rear cockpit in this F-15B.



The Escapac seat was replaced with the ACES II seat as shown here. It is now fitted in all U.S. F-15s. At left is the front view, and at right is the seat seen from behind.

ACES II seat viewed from the right side.

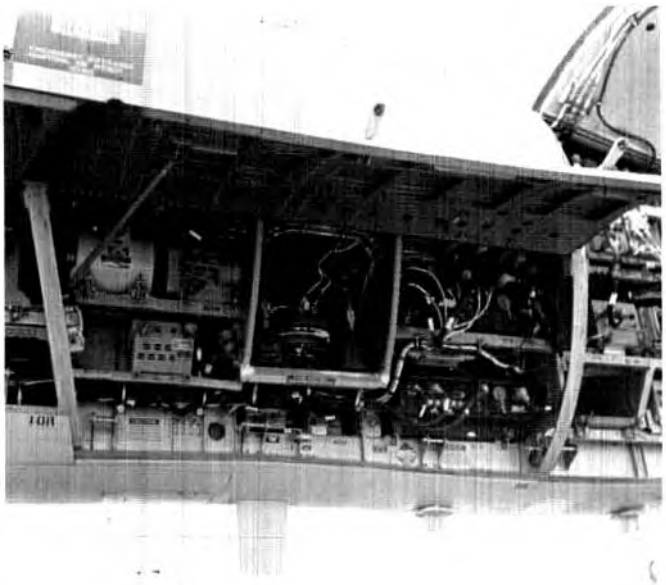


Left side view of the seat.

View looking at the survival pack with the seat installed in the aircraft. The shorter straps go to the survival pack, and the longer belts on top are the lap belts.

Close-up of the straps that attach to the harness over each shoulder.

AVIONICS



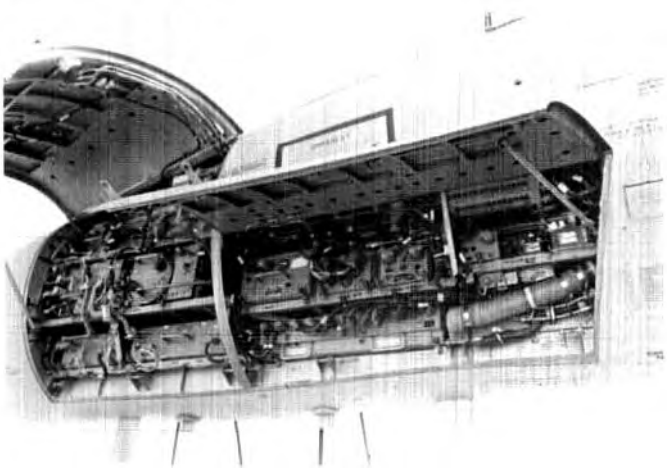
Above left: Center bay on the right side.

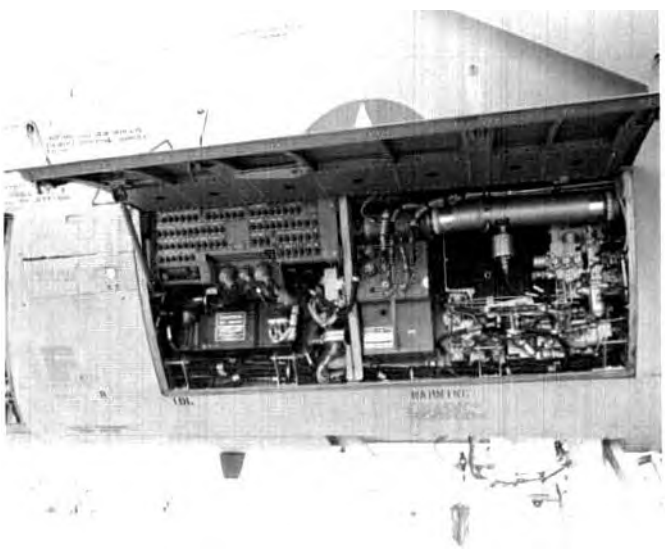
Above right: Forward right avionics bay.

Left: Right rear bay.

Below left: Forward and center bays on the left side.

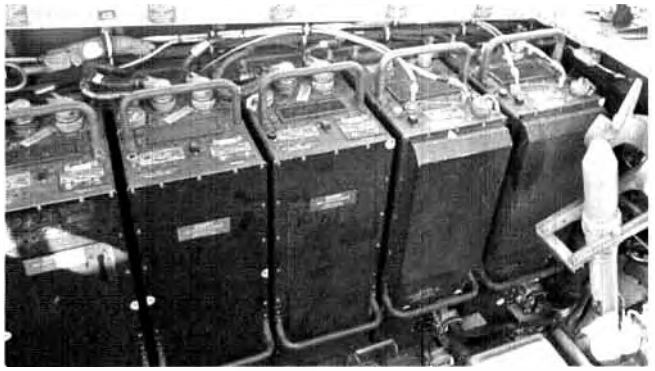
Below right: Aft bay on the left side. The boarding steps fold into the area between the middle and aft bays on the left side.



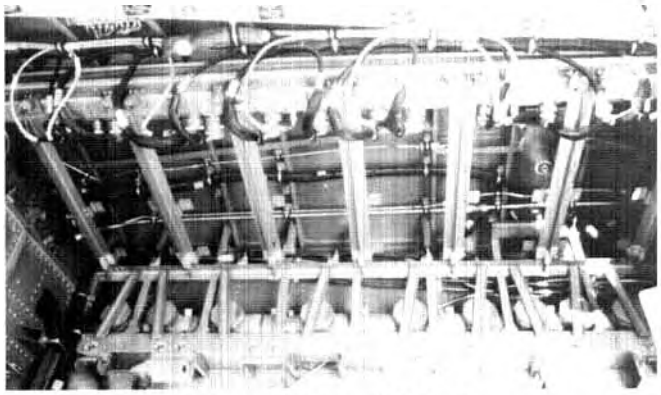


ELECTRONICS BAY

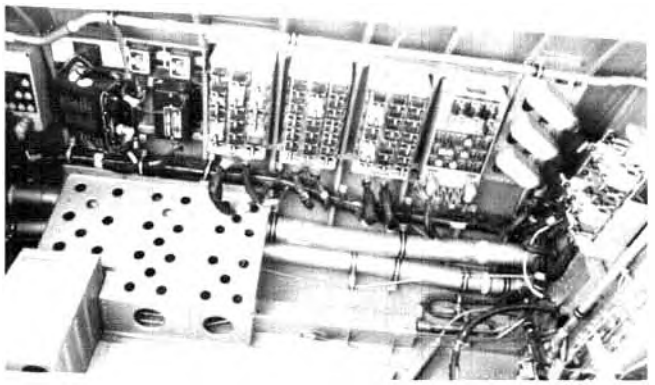
On single seat F-15s there is an avionics bay behind the seat known as bay 5. This view shows some of the "black boxes" on the left side in the rear corner.



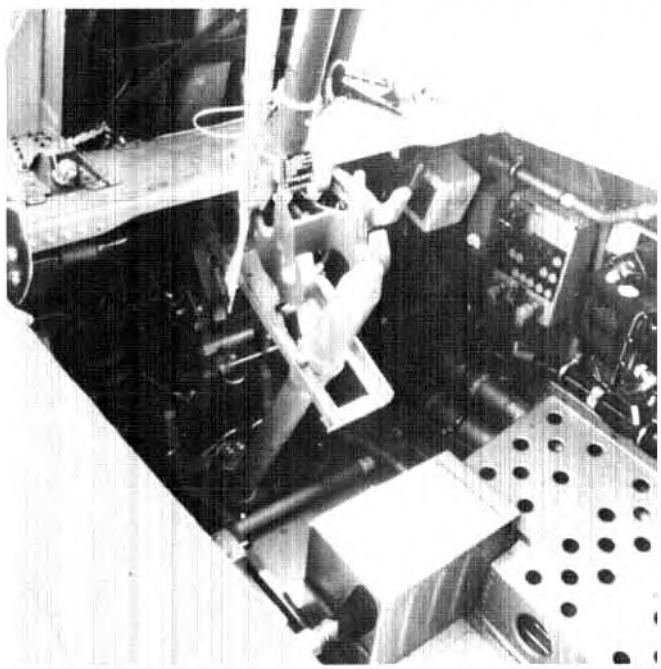
This view shows the left side, looking more forward. There are a total of six boxes which are known as Internal Countermeasures Sets (ICS). The two-seat F-15s do not carry these ICS's, but carry an ALQ-131 pod instead.



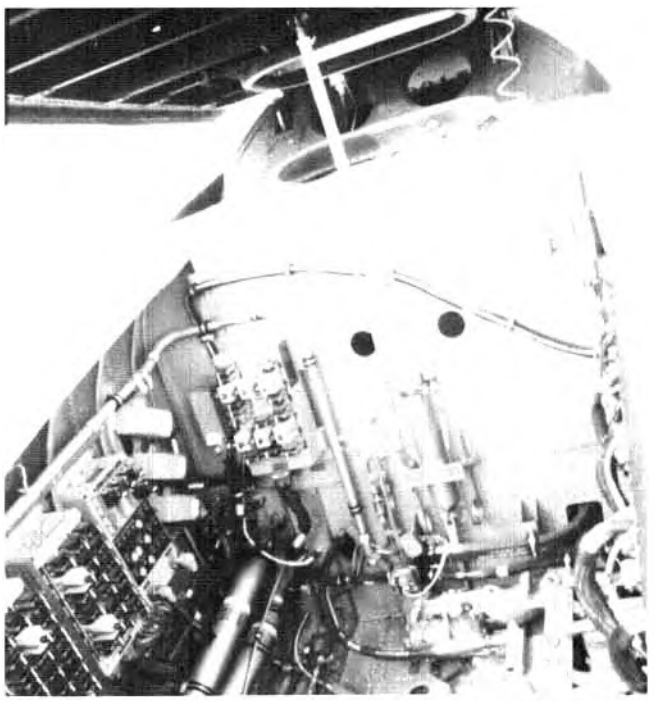
View looking at the left side with the boxes removed.



View looking at the right side of the bay.

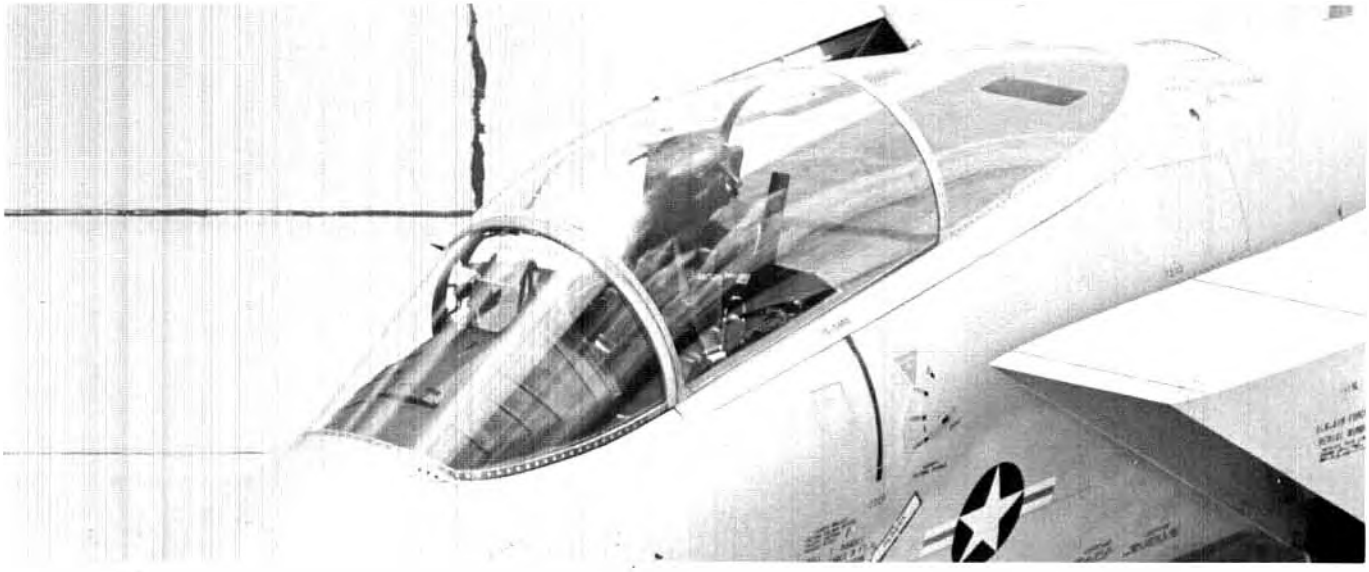


The forward end of the bay is shown here. The latching mechanism is visible at the center. The pole that extends upward from the latches is a removable brace, and not part of the aircraft itself.

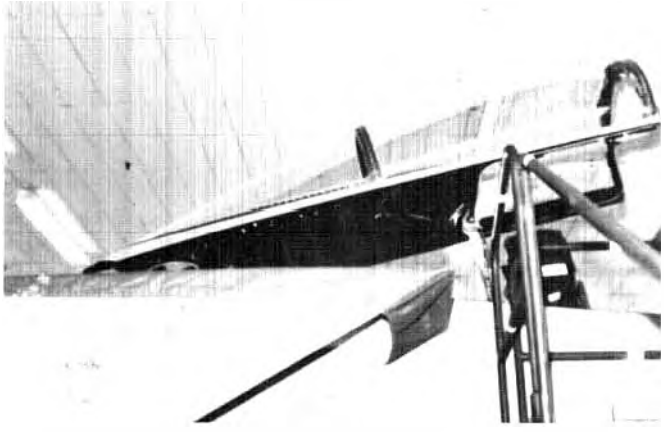


This photo is looking aft in the bay. The mechanism that raises and lowers the canopy is visible at the center of the photograph.

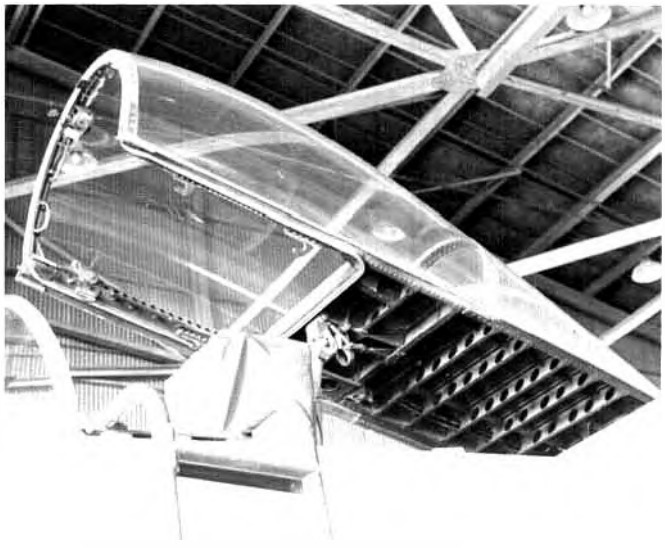
CANOPY DETAILS



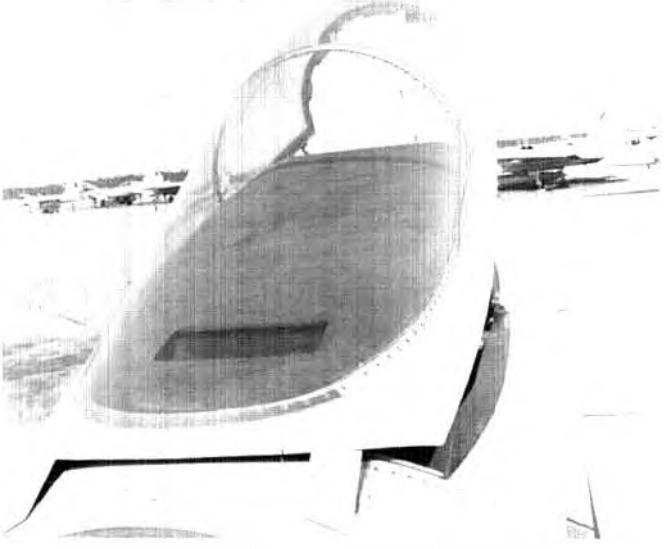
The canopy of the F-15 provides excellent all-around visibility for the pilot who sits high in the cockpit. On single seat versions, a decking, sometimes called a turtle back, seals off the equipment bay behind the seat which remains unpressurized. *(Cockle)*



Canopy seen from the right side. *(Johnson)*



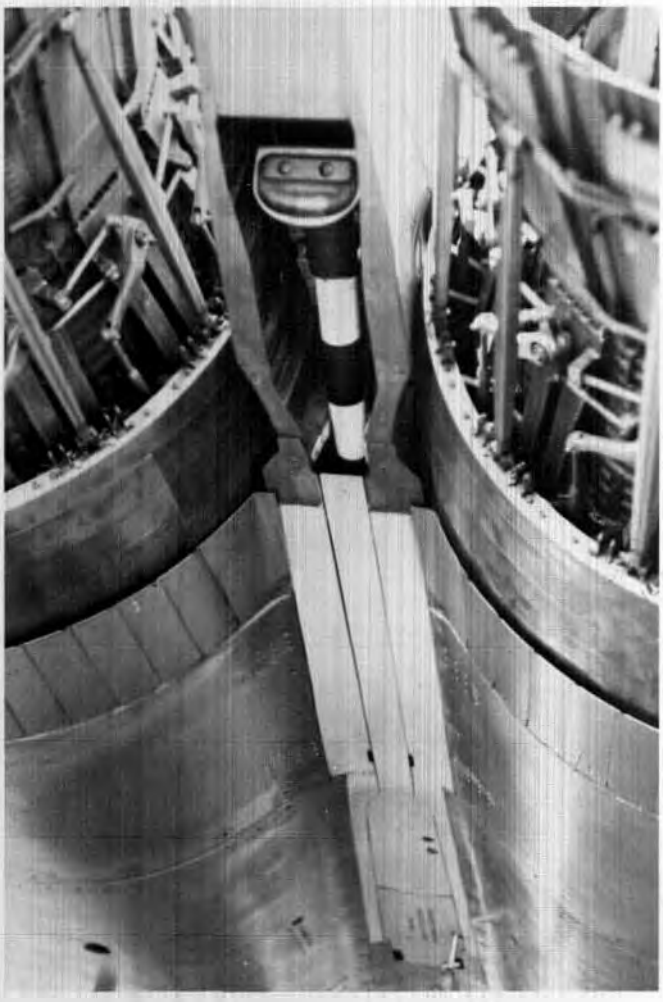
This photo shows the structure under the rear decking.



Canopy as viewed from behind. The decking is clearly visible in this view.

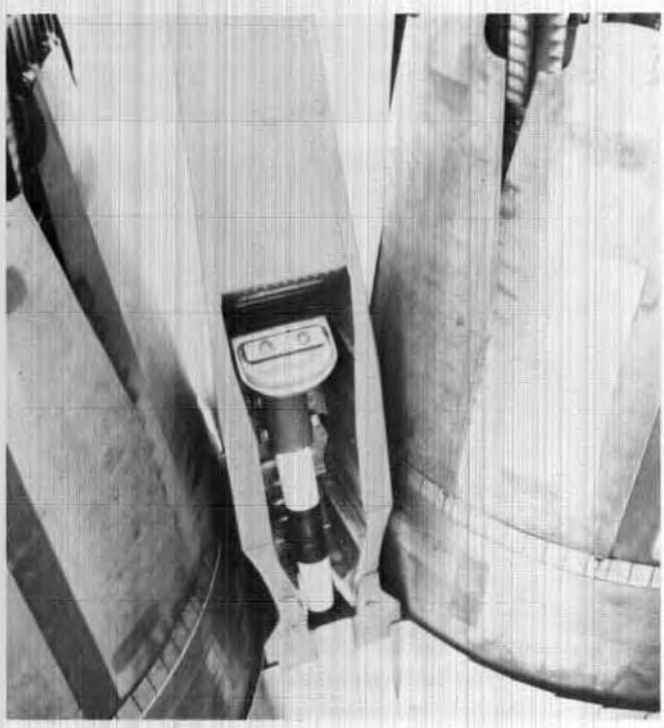
The canopy on the two seat versions is larger in the rear, affording room for the second pilot. There is no rear decking.

TAIL HOOK DETAIL



Above left: Tail hook in the retracted position.

Above right: Tail hook seen in the extended position.



Below left: Close-up of the aft end of the hook. Originally the end of the hook was covered by doors, but these have been removed, and are no longer seen on operational aircraft.

Below right: Close-up of the forward end of the hook showing where it connects to the fuselage between the engines.

CONFORMAL FUEL PALLETS

Conformal fuel pallets were designed for the F-15 that would increase fuel capacity without a significant increase in drag. At left is a photograph showing the maximum fuel stores on an F-15. In addition to the internal fuel load, the aircraft carries two conformal tanks and three standard external tanks on pylons. The photo at right shows how the AIM-7 Sparrow missiles are attached to the tanks. *(McDonnell Douglas)*

These two front views show the cross section of the pallets, and the angle at which the Sparrows are attached. *(McDonnell Douglas)*

These two rear views show how the conformal fuel pallets "conform" to the shape of the F-15 under the wings and aft fuselage. Note the seal between the tank and aircraft. *(McDonnell Douglas)*

RED, WHITE, AND BLUE EAGLE

The first two-seat F-15, 71291, was originally designated TF-15. Later the designation was changed to F-15B. The aircraft was used for many displays on exhibitions, and the airframe was used for many tests. For quite some time it was painted in this colorful red, white, and blue scheme. Several minor variations were used, particularly in the tail markings. Still later, 71291 became the test airframe for the F-15E dual role fighter, and it was painted in different schemes.
(McDonnell Douglas)

Flying over St. Louis, 71291 is shown with conformal fuel pallets and the Canadian national insignia.
(McDonnell Douglas)

On the left side of the aircraft are the flags of sixteen nations. The names of ten nations are painted on the tail.
(McDonnell Douglas)

71291 was used extensively for bomb release evaluation. In these two photos, bombs are shown being carried on multiple ejector racks. A multitude of cameras are located on orange colored mounts to photograph the separation of the bombs from the aircraft.
(McDonnell Douglas)

EAGLE COLORS

The first Eagles were painted in Air Superiority Blue, and often carried bright orange markings. Several of the original design features of the F-15 can be seen in this photo. Note the blunt or squared shape of the wing tips as compared to the production aircraft that have a rounded shape. Also note the straight leading edge to the horizontal stabilizer. Later a snag was added. *(McDonnell Douglas)*

The "Streak Eagle," time-to-climb record aircraft approaches the end-of-runway barrier at Grand Forks AFB, North Dakota, in preparation for an attempt at furthering its success during record breaking and record making flights during January and February 1975. *(Slowiak)*

The Japanese Self-Defense Force is obtaining Eagles to bolster its important interceptor squadrons. *(McDonnell Douglas)*

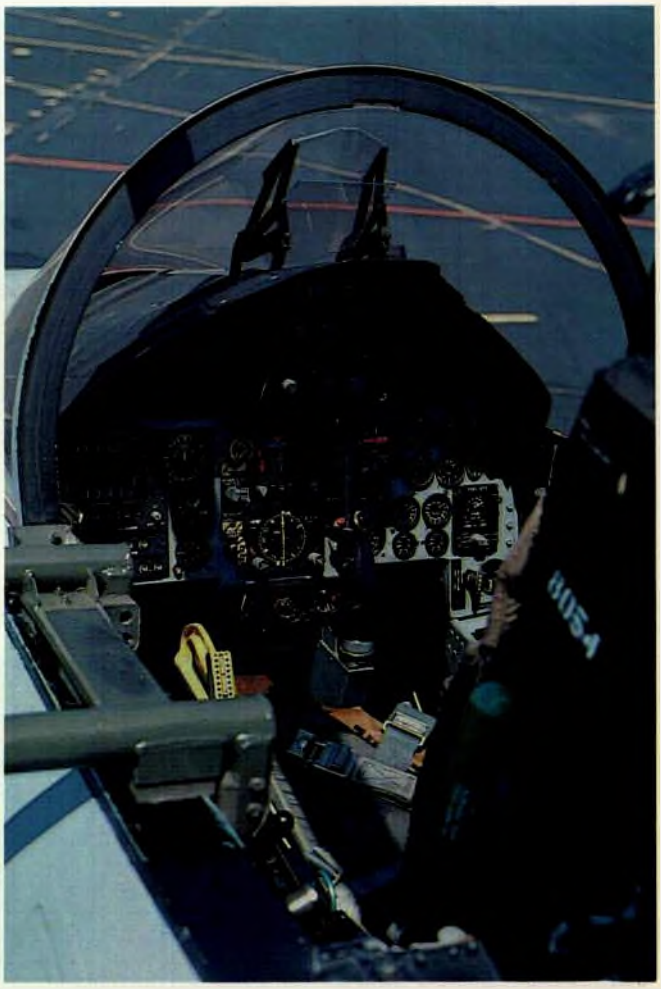
Two F-15s from Soesterberg, The Netherlands, patrol the skies over Europe. These are "live" missiles, and the colors of the marking bands should be noted. *(McDonnell Douglas via Cockle)*

Two Eagles from the 48th FIS are shown with the new gray colored missiles. Again, these are live missiles as indicated by the yellow band around the warhead. *(McDonnell Douglas via Cockle)*

Another 48th FIS F-15A fires an AIM-7 Sparrow missile. *(McDonnell Douglas)*

F-15 COCKPITS

The front cockpit in the F-15B is virtually the same as that in the F-15A.



This photo of the cockpit in an F-15C shows very little difference from that in the F-15A. (Van Winkle)

This close-up of the instrument panel in an F-15A shows the colors of the instruments, knobs, and switches to good effect.

The left console with the throttles is shown here as is the control column.

The right console is visible in this photo. Note the oxygen hose and communications wire on the aft end of the console.

The instrument panel in the rear cockpit of the F-15B (and F-15D) is simpler than that in the front cockpit. See pages 25 and 26 for cockpit drawings and keys denoting the purpose of each instrument and panel in the cockpits.

Left side in the rear cockpit of an F-15B.

Right side of the rear cockpit.

RADAR AND AVIONICS

Head-on view of the radar antenna.

Left front view showing the mount and area behind the antenna.

Forward right equipment bay.

Forward left bay.

These two views show the equipment bays open on both sides of the nose of an F-15A. On the left side there is a small area between the two aft bays where the boarding steps retract. Close-up details of these bays are seen on page 24.

F-15E DUAL ROLE FIGHTER

The F-15E dual role fighter evaluation aircraft carries a large weapons load of cluster munitions and Sidewinder missiles. This aircraft, 71291, was formerly the TF-15, then F-15B, used in many demonstrations.
(McDonnell Douglas via Cockle)

The F-15E is shown here taking off with an F-15B. *(McDonnell Douglas)*

This view shows the underside pattern for the green camouflage scheme. *(McDonnell Douglas)*

Even the cluster bombs and Sidewinder missile are camouflaged in this photo. *(McDonnell Douglas)*

The F-15E cockpits are quite different from those in standard Eagles. This photo, taken in the Strike Eagle simulator, gives an idea of the futuristic look of these cockpits. *(McDonnell Douglas)*

The biggest changes are in the rear cockpit. Note the four scopes, and compare this to the photo of the F-15B rear instrument panel on page 37. *(McDonnell Douglas)*

The F-15E dual role fighter is the latest development of the F-15's versatility. ***(McDonnell Douglas)***

The F-15E was originally called the "Strike Eagle" to bring attention to the fact that this version was optimized for the ground attack or strike mission. However, the term "Strike Eagle" has fallen from favor with the Air Force and McDonnell Douglas.

The need is great for an aircraft that can carry a heavy ordnance load over long distances and deliver that load in adverse weather or night conditions. Currently, only the few available and aging F-111s can perform this mission. The F-111 comprises only eight percent of the force.

Just prior to press time of this publication, the Air Force announced that the F-15E had won the dual role fighter competition over the F-16E. These two aircraft had competed to fill the Air Force's need for a fighter aircraft that could deliver a large ordnance load against surface targets at long ranges and in adverse weather or at night. While the Air Force stated that the F-16E, which was formerly designated the F-16XL, deserved further study, the F-15E will become the new dual role fighter, and this section of the book will deal with its development.

McDonnell Douglas modified F-15B, 71-291, into what is now called the F-15E DRFD, which stands for, "dual role fighter demonstrator." This is the same airframe that previously wore the colorful red, white, and blue scheme, and was used for many demonstrations when F-15s were first entering the inventory.

The rear cockpit is completely different from that in the F-15B and -D. Most noticeable are the four large display screens across the top of the instrument panel. These multipurpose CRT displays provide information on the aircraft, weapon status, enemy defenses and threat, and supply data for navigation, target acquisition, and weapons delivery. The Tactical Situation Display (TDS) is actually a moving electronic map. Here the operator is provided with threat status and location, navigational data, and sensor management information. The Synthetic Aperture Radar (SAR) provides a high resolution photographic-quality display to detect tactical targets. It is not affected by weather, smoke, or haze, and targets as little as ten feet apart can be detected and distinguished from each other. The Ground Moving Target Detection sub mode alerts the operator to moving targets.

For weapons delivery, the F-15E has an advanced Nav/Attack system and all-weather sensors that allow accurate delivery of weapons in all weather conditions. The Maneuvering Attack System (MAS) allows the aircraft to attack from any heading and still achieve the desired weapons pattern on the target. Weapons can be released during high G maneuvers, enabling stand-off delivery. This enhances aircraft survivability.

A terrain following/avoidance system allows low altitude penetration to reduce chance of detection. The F-15E also has built-in self defense equipment to include radar homing and warning, active ECM, and automatic flare and chaff dispensing. All of this further adds to the survivability of the aircraft.

Once in enemy territory, the SAR can detect targets from twenty miles away. A Forward Looking Infrared (FLIR) sensor also provides target detection. Target detection is displayed on the Tactical Situation Display with relative range and bearing to the target.

For an aircraft originally designed as an air superiority fighter, the F-15E demonstrates the fact that the F-15 can be configured to perform the most difficult of ground attack missions - that of delivering a large payload over long distances in adverse weather or night conditions. It is for this reason that the Air Force chose the F-15E as the winner of the dual role competition. Plans call for 392 F-15C/D airframes, on order for Fiscal 1986-1991, to be modified to the F-15E standard. The remainder of the 516 F-15s on

View looking up at the F-15E loaded with a massive ordnance load. ***(McDonnell Douglas)***

order for those years will be built as F-15Cs and -Ds. Delivery of the first F-15E is expected in 1988. Operational testing and evaluation will begin at that time.

Production F-15Es will have a gross take-off weight of 81,000 pounds, and will use the "tangential carriage" of weapons stores. The selection of the engine for the F-15E will be made between the Pratt & Whitney F100 and the General Electric F110. Cost of the F-15E will be about 4% over that of the F-15C/D, and there is an 87% commonality of parts between the F-15E and the -C/D versions. Once deployed, operational squadrons of F-15Es will be utilized about 70% for the long range interdiction mission, and 30% for the air superiority role.

These two views show munitions loaded on the F-15E. ***(France)***

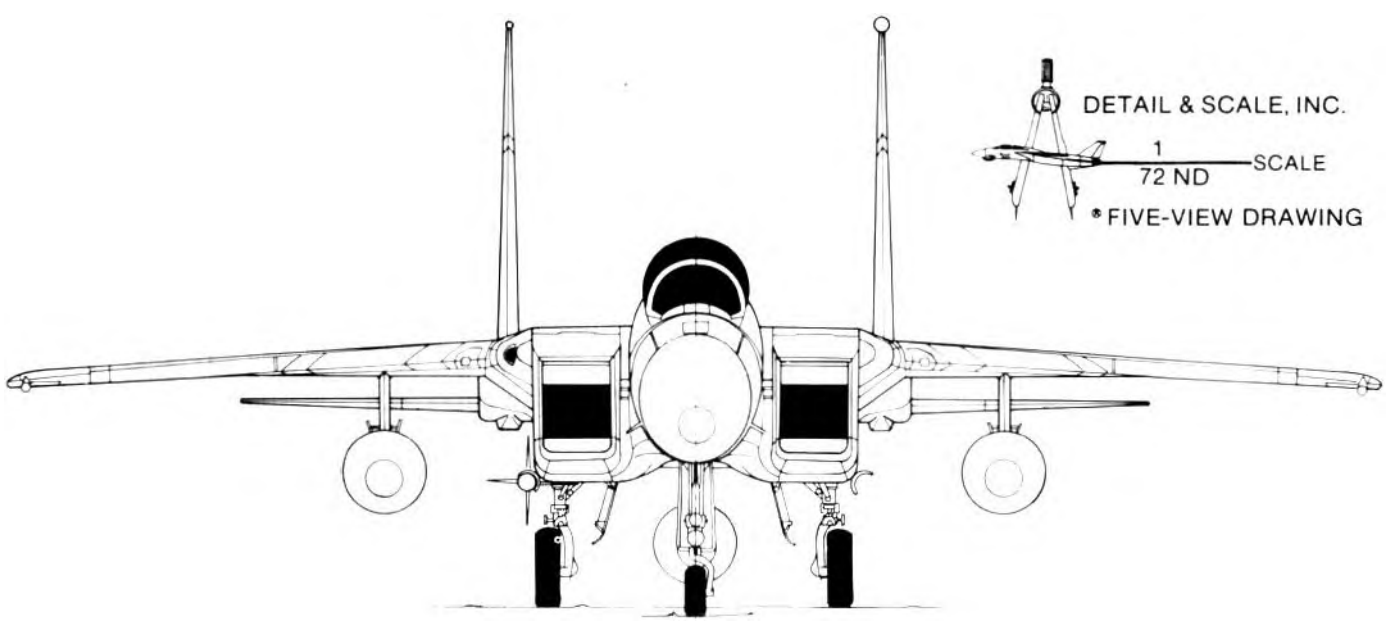
DIMENSION DATA

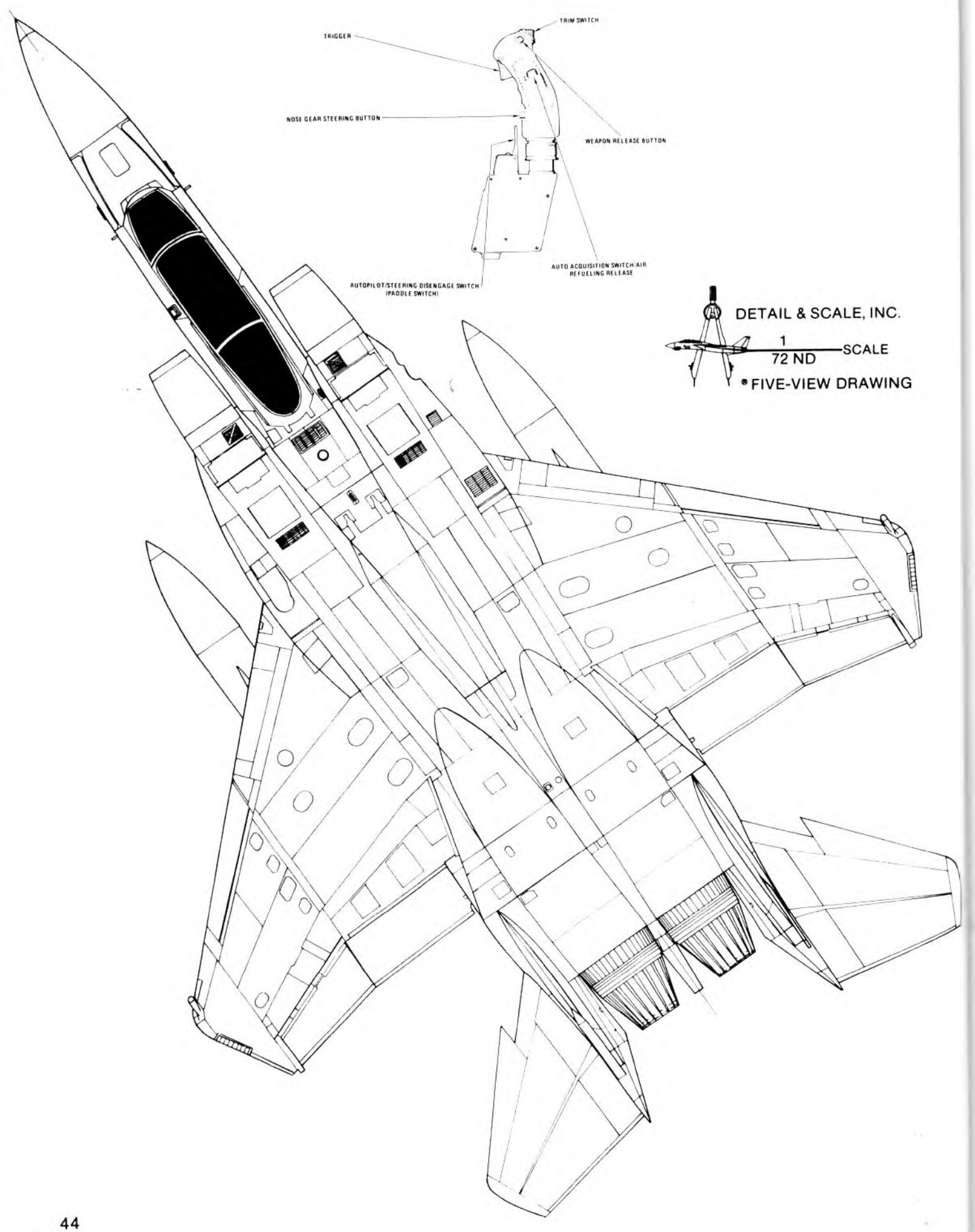
DIMENSION	ACTUAL	1/72nd SCALE	1/48th SCALE	1/32nd SCALE
Wingspan	42.81 ft.	7.135 in.	10.703 in.	16.054 in.
Horizontal Tail Span	28.25 ft.	4.708 in.	7.063 in.	10.593 in.
Length	63.75 ft.	10.625 in.	15.938 in.	23.906 in.
Height of Tail*	18.45 ft.	3.075 in.	4.613 in.	6.919 in.
Wheel Base	17.78 ft.	2.963 in.	4.445 in.	6.668 in.
Wheel Track	9.03 ft.	1.505 in.	2.258 in.	3.386 in.
Ht. of Canopy, F-15A*	11.96 ft.	1.990 in.	2.990 in.	4.485 in.
Ht. of Canopy, F-15B*	12.33 ft.	2.055 in.	3.085 in.	4.624 in.
Mean Aerodynamic Chord	15.94 ft.	2.657 in.	3.985 in.	5.978 in.

*Height measurements will vary with tire pressure, contraction of the oleo struts, and gross weight of the aircraft.

Five-view drawings of the F-15 Eagle and many other aircraft are available separately in 1/48th scale at a nominal price. Write to Aero Publishers, Inc., 329 West Aviation Road, Fallbrook, California, 92028, for details.

1/72ND SCALE DRAWINGS




TRIM SWITCH
TRIGGER
NOSE GEAR STEERING BUTTON
WEAPON RELEASE BUTTON
AUTO ACQUISITION SWITCH/AIR REFUELING RELEASE
AUTOPILOT/STEERING DISENGAGE SWITCH (PADDLE SWITCH)
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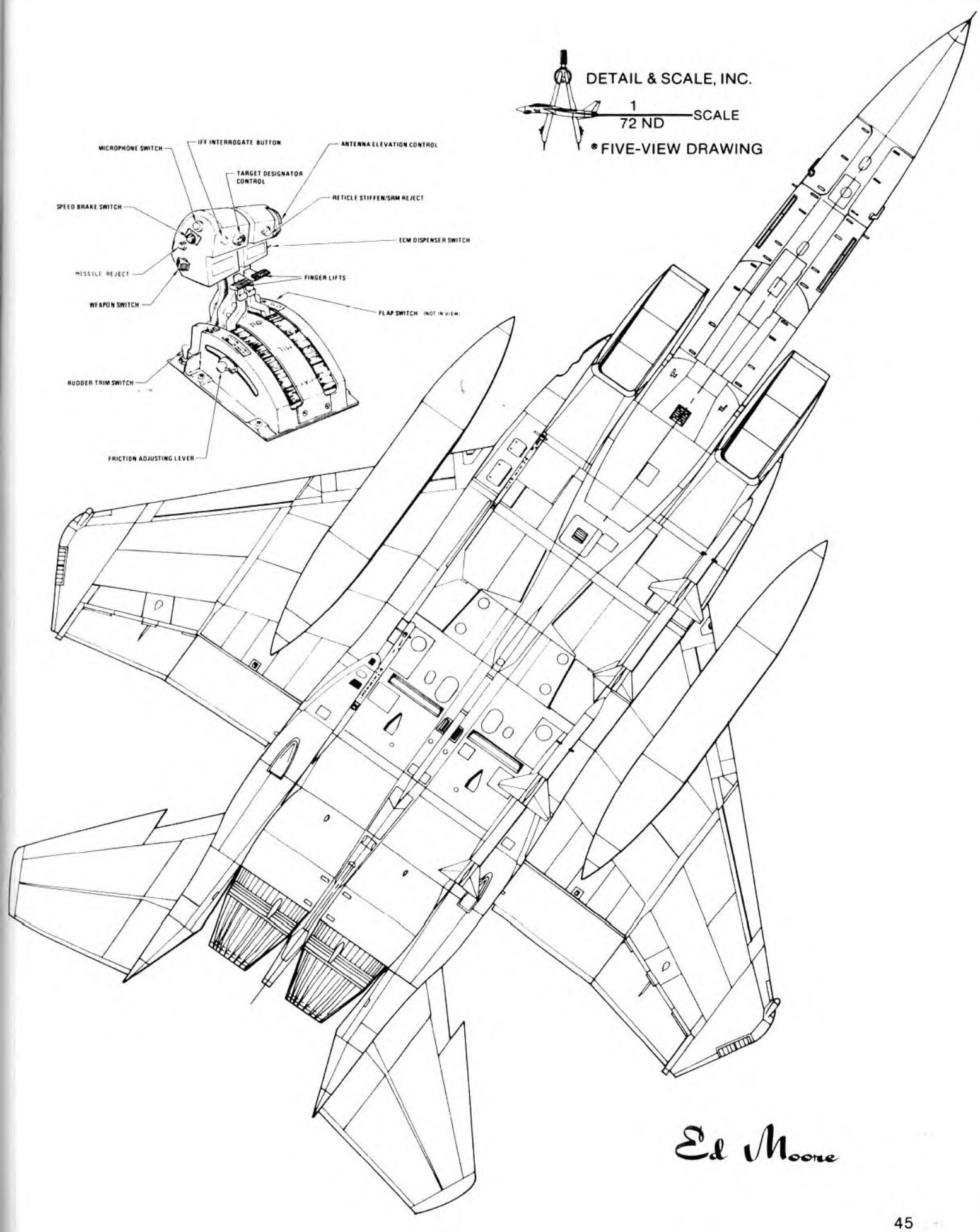
SCALE
*FIVE-VIEW DRAWING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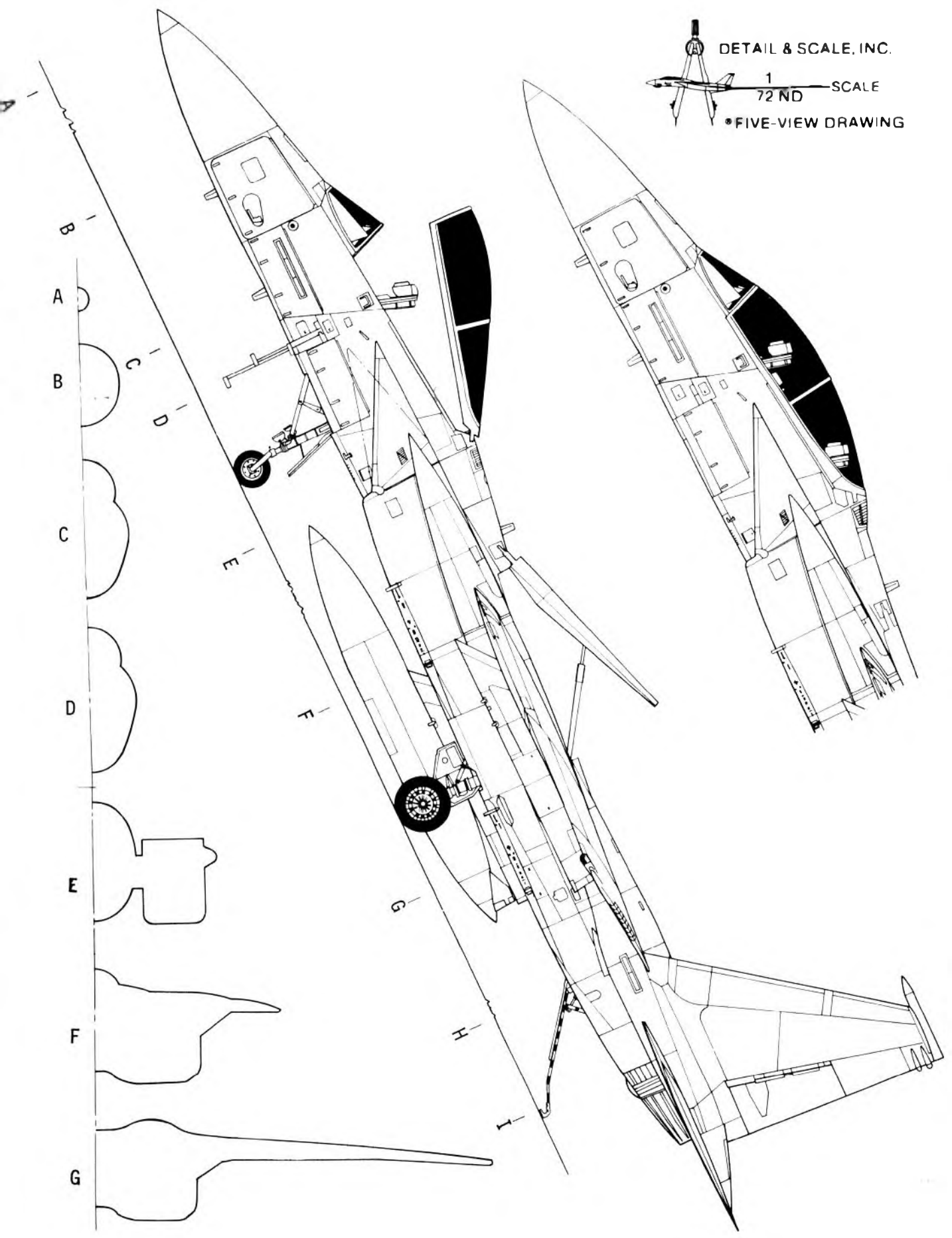
SCALE
® FIVE-VIEW DRAWING
MICROPHONE SWITCH
IFF INTERROGATE BUTTON
ANTENNA ELEVATION CONTROL
TARGET DESIGNATOR CONTROL
RETICLE STIFFEN/SRM REJECT
SPEED BRAKE SWITCH
ECM DISPENSER SWITCH
MISSILE REJECT
FINGER LIFTS
WEAPON SWITCH
FLAP SWITCH (NOT IN VIEW)
RUDDER TRIM SWITCH
FRICTION ADJUSTING LEVER
Ed Moore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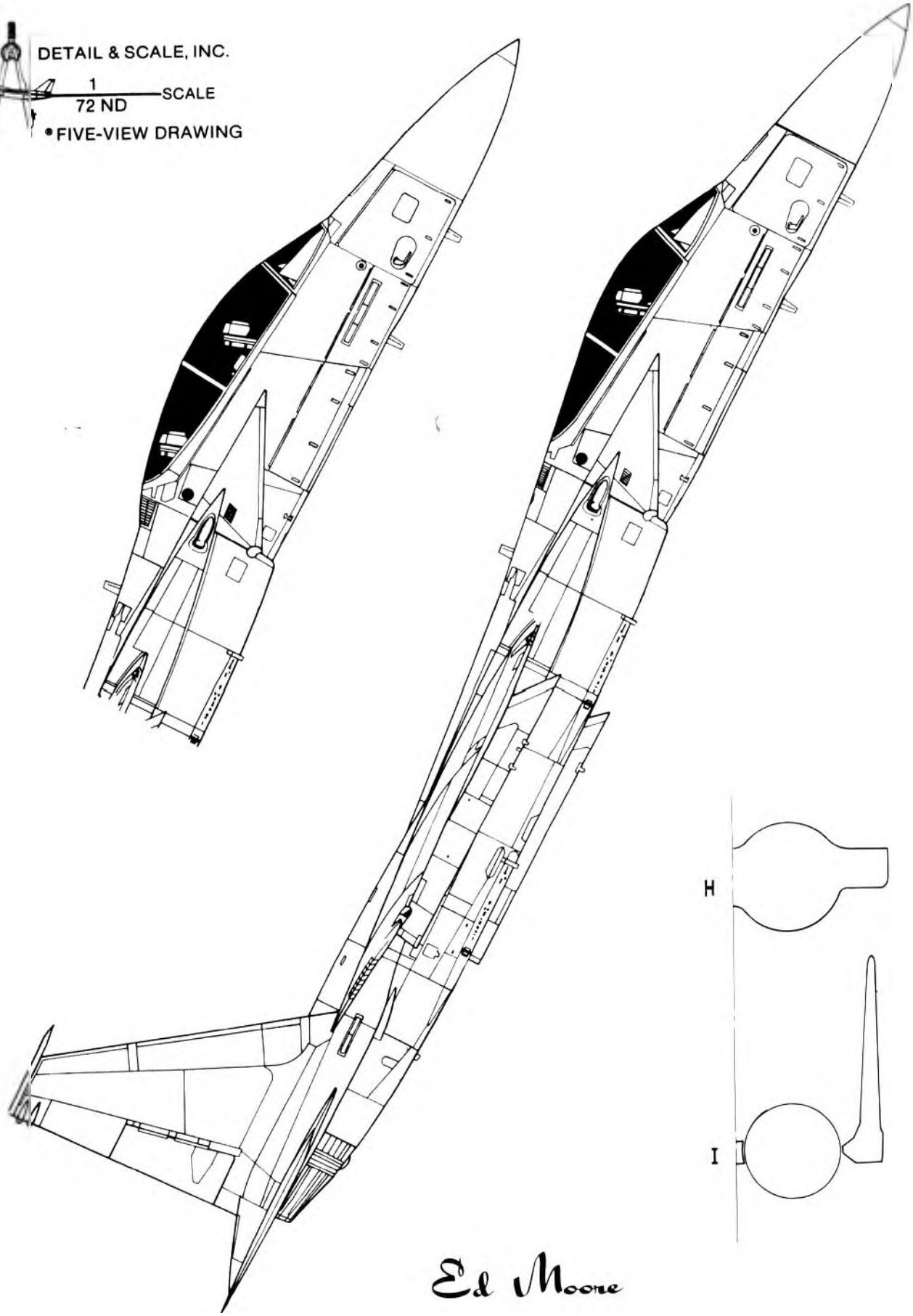
SCALE

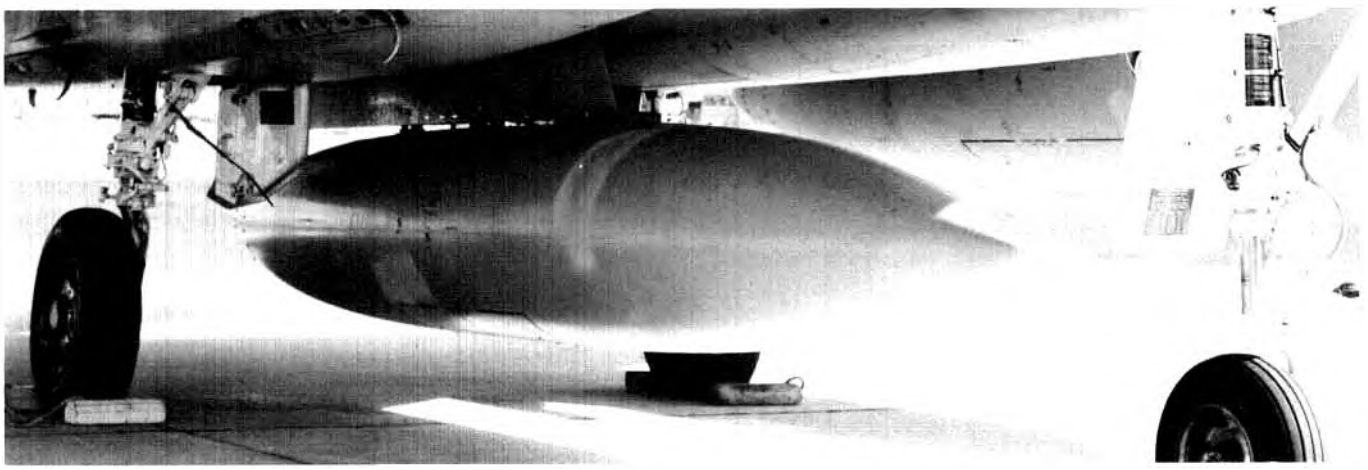
• FIVE-VIEW DRAWING



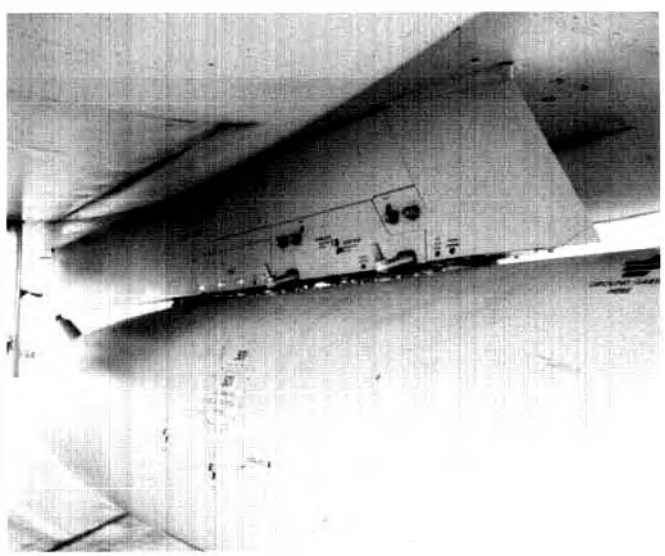
Ed Moore

PYLONS AND FUEL TANKS

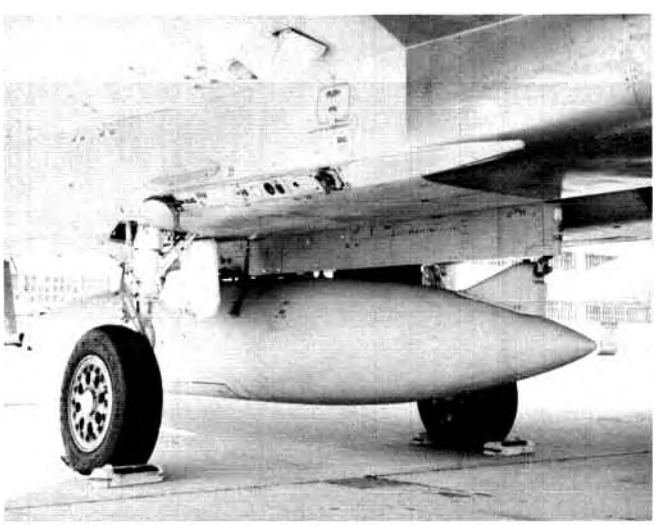
This F-15 has three 600 gallon tanks carried on its three pylons. Sidewinders are also mounted on the wing pylons. *(Cockle)*



View of the centerline 600 gallon tank from the front right. *(Cockle)*



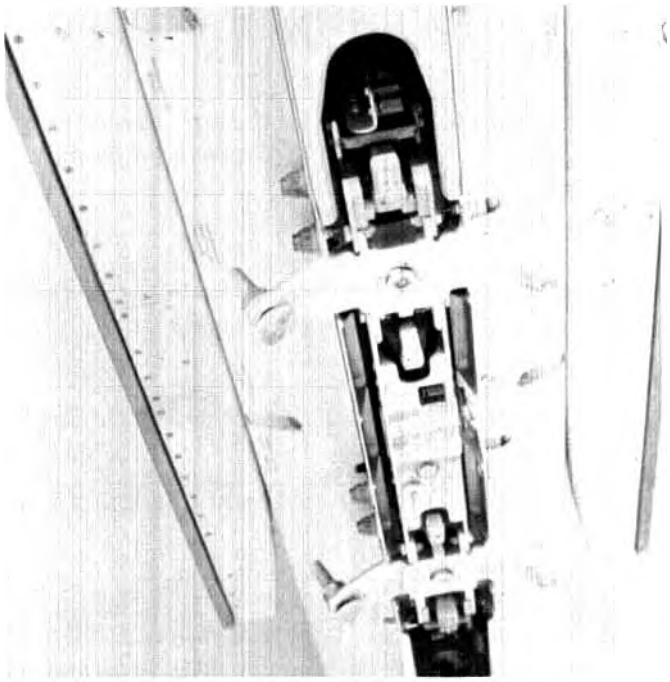
Close-up of the centerline pylon with a tank attached as seen from the front right.



This view shows the centerline pylon and tank from the left rear. Note the attach point at the rear of the pylon. *(Cockle)*

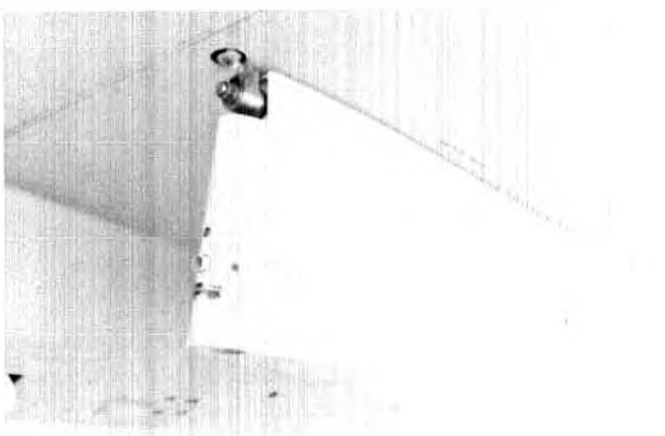
Right wing pylon with Sidewinder launch rails attached.

Left wing pylon detail.

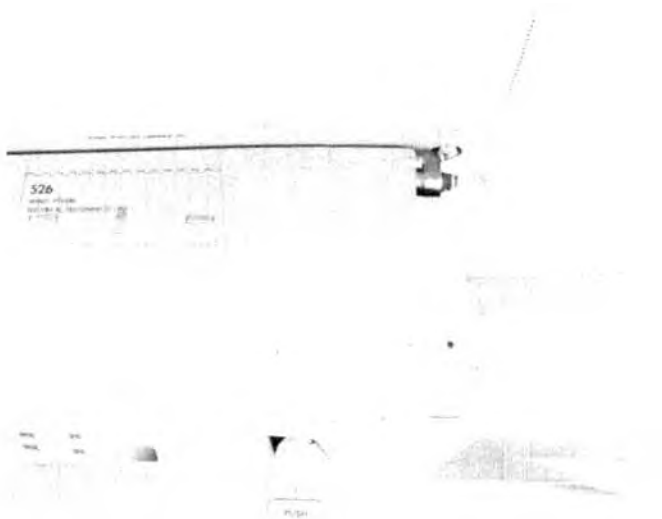


Close-up of the attach points under the pylon.

Left wing pylon as viewed from the front.

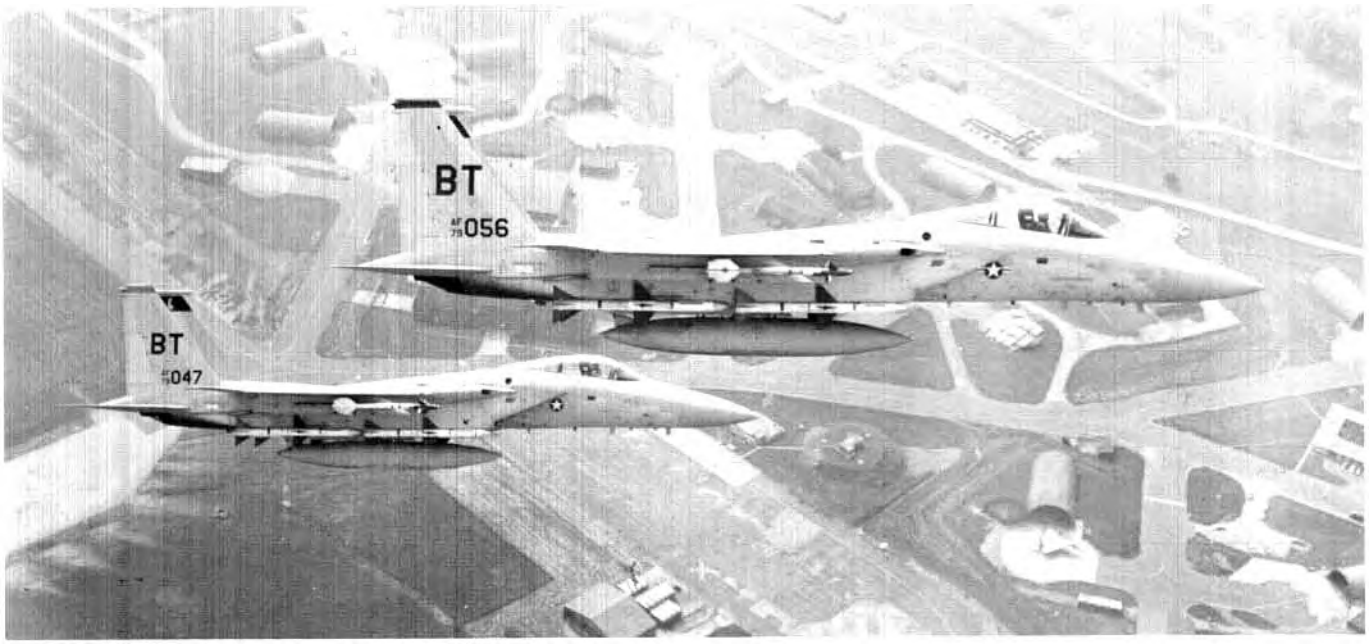


Rear of right wing pylon. Note that there is a gap between the pylon and the wing. Note the mounting bolt.



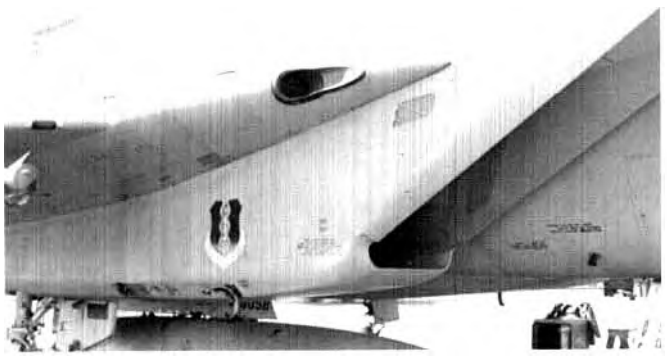
Rear of the left wing pylon showing the mounting bolt.

AIR-TO-AIR ARMAMENT



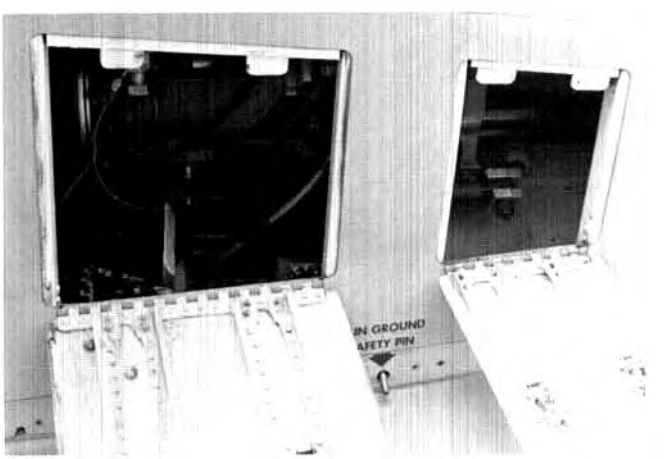
These two Eagles are seen over Bitburg Air Base in Germany. They are fully armed for the air-to-air mission with gun, Sidewinder, and Sparrow missiles. *(McDonnell Douglas)*

20MM CANNON



20 mm cannon port detail on the right wing fillet.

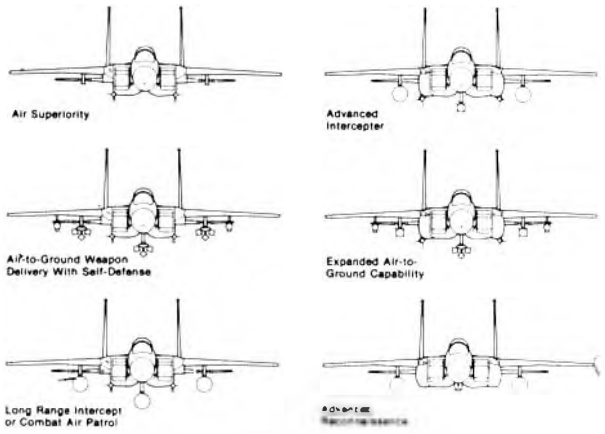
Cannon port and gun gas vents as seen from above.

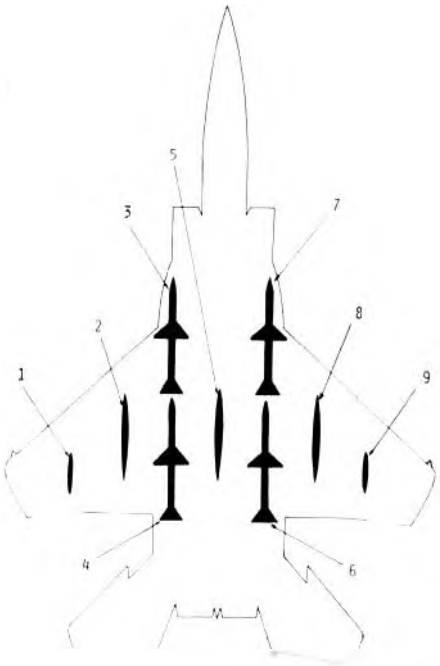


Open access doors directly under the cannon. The rotator mechanism and ammunition feed can be seen in this view. Safing devices for the gun are located here.

This open access panel is located under the fuselage just ahead of the centerline pylon. This is where up to 940 rounds of 20 mm ammunition is loaded into the aircraft. There is a limit switch that can limit the number of rounds that can be fired on a mission. Additionally, the ammunition can be unloaded at this point.

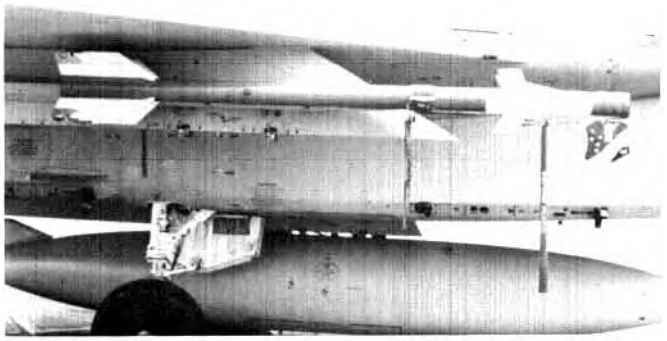
EXTERNAL STORES CAPABILITY



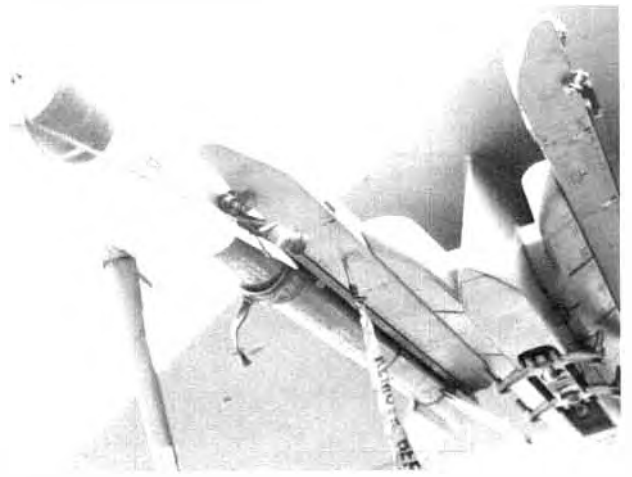


STORES	1	2	3	4	5	6	7	8	9
Air-To-Air Missiles									
AIM-7F Sparrow			1	1		1	1		
AIM-9E/L Sidewinder		2						2	
Bombs									
General Purpose/Demolition									
MK 82 Slick		6			6			6	
MK 82 Snakeye		6			6			6	
MK 84 Slick		1			1			1	
MK 84 Guided (Laser, Infrared, Electro Optical)		1			1			1	
Fire Bombs (Napalm)									
BLU-27B/B (Finned or Unfinned)		3			3			3	
Dispensers									
CBU-42/A		3			3			3	
CBU-52B/B		4			4			4	
CBU-58/B		4			4			4	
CBU-71/B		4			4			4	
Rockeye (MK-20)		6			6			6	
Training									
SUU-20B/A		1			1			1	
Fuel Tank (600 Gallon)		1			1			1	
ECM POD	1								1
TOTAL WEIGHT LIMITS (POUNDS)	1000	5100	N/A	N/A	4500	N/A	N/A	5100	1000

AIM-9 SIDEWINDERS

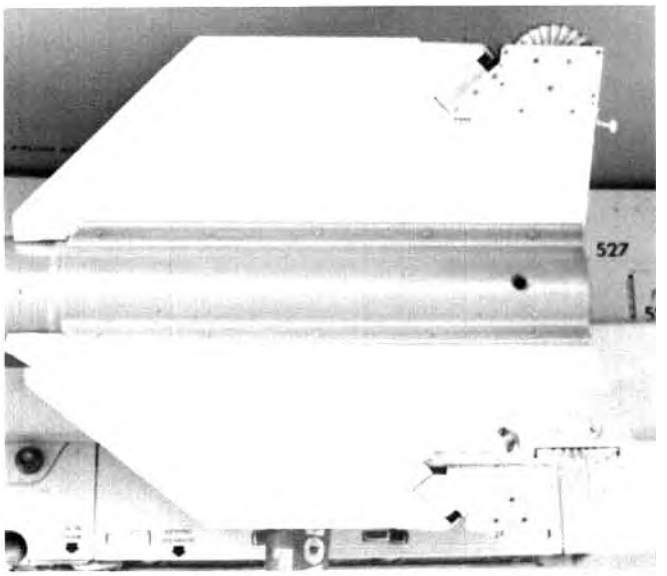


AIM-9J on the right wing pylon. The forward fins on the AIM-9J are of a different shape than those on other versions of the Sidewinder.



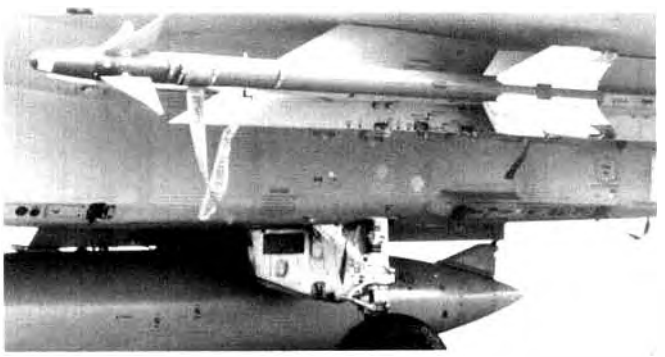
Excellent view looking up at an AIM-9J on one rail of the right wing pylon.

The front part of the launch rail swings away from the missile as shown here.



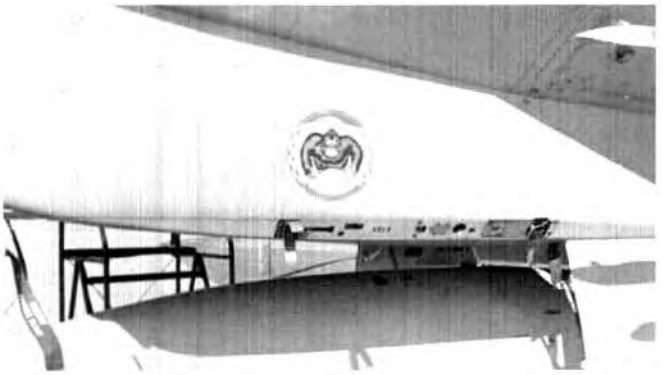
Details of the rear fins of the missile are shown in this photo. Each fin has a rolleron on the rear corner.

AIM-9L Sidewinders on the right wing pylon.

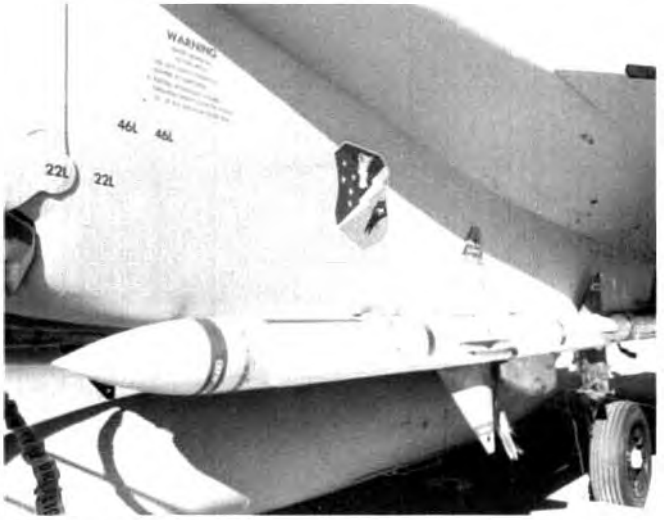


AIM-9L training missile on the left pylon. Note the shape of the forward fins.

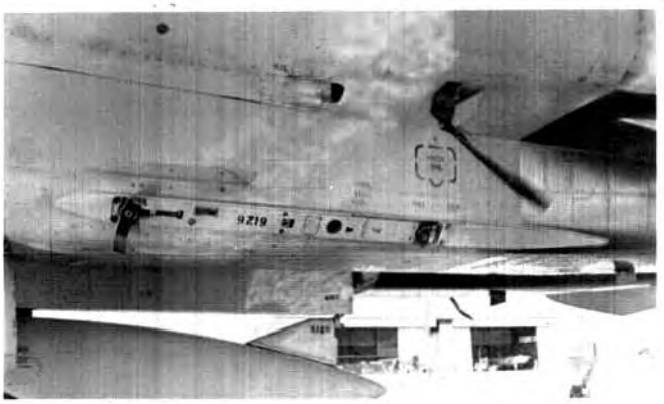
AIM-7 SPARROWS



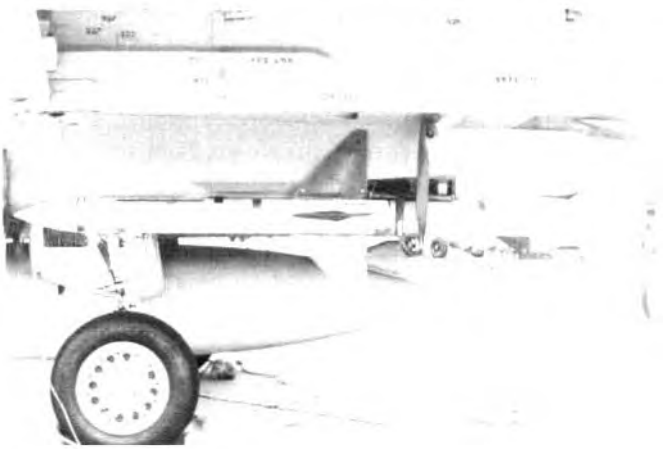
Above left: Left forward AIM-7 Sparrow attach point. Note the C shaped ring just under the squadron insignia.



Above right: Front left view of the forward Sparrow on the left side of the aircraft.

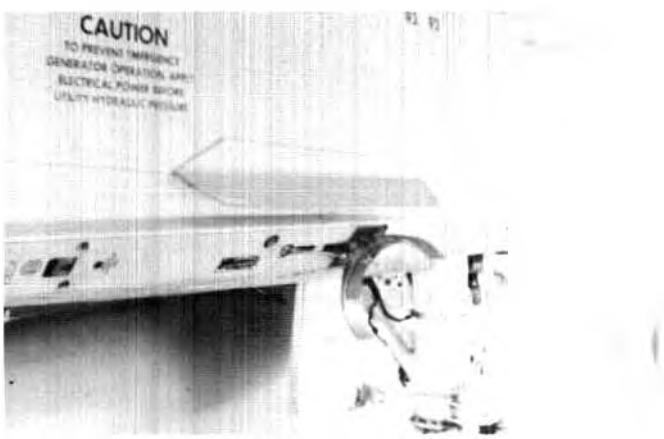


Left rear AIM-7 attach point.



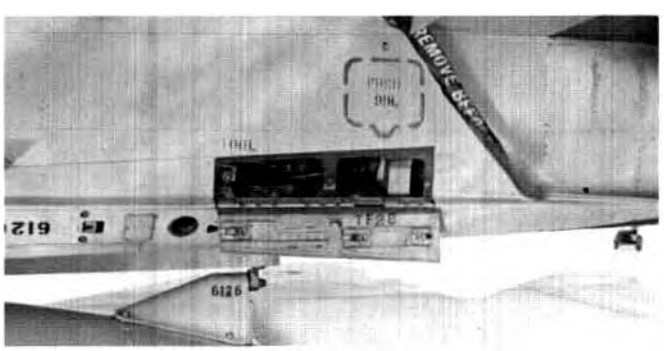
Sparrow mounted on the left rear station.

Left: There is a strake just above the forward portion of the rear AIM-7 mounting positions. It helps control the air flow over the missile to insure proper separation.

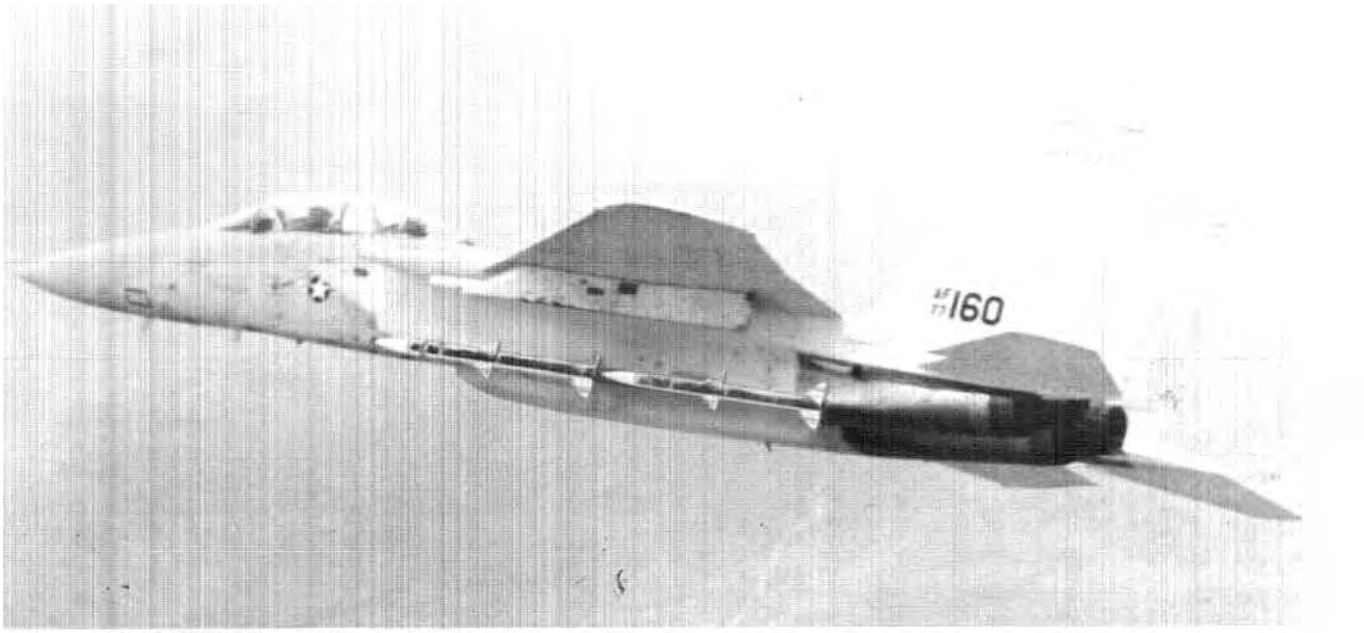


Below left: Open panel above the left rear mount. In this panel are two jettison cartridges to eject the Sparrow from the aircraft. The electrical safing pins are located under this panel. On the forward Sparrow mounts, this panel is under the fuselage.

Below right: The same panel is shown open above the right rear missile with the missile in place. Again, note the strake above the forward part of the missile.

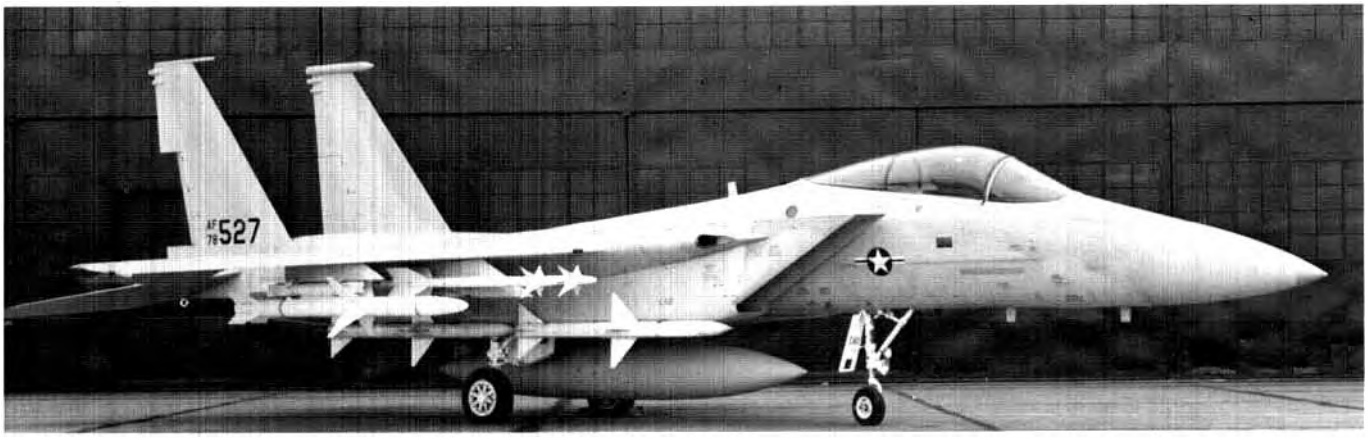


AMRAAM



The AIM-120 AMRAAM (Advanced Medium Range Air-to-Air Missile) is scheduled to replace the AIM-7 Sparrow in the 1986 time frame. The missile will be carried where Sparrows are now carried. AMRAAMs are shown on F-15B, 770160, during testing and evaluation. ***(McDonnell Douglas)***

HARM

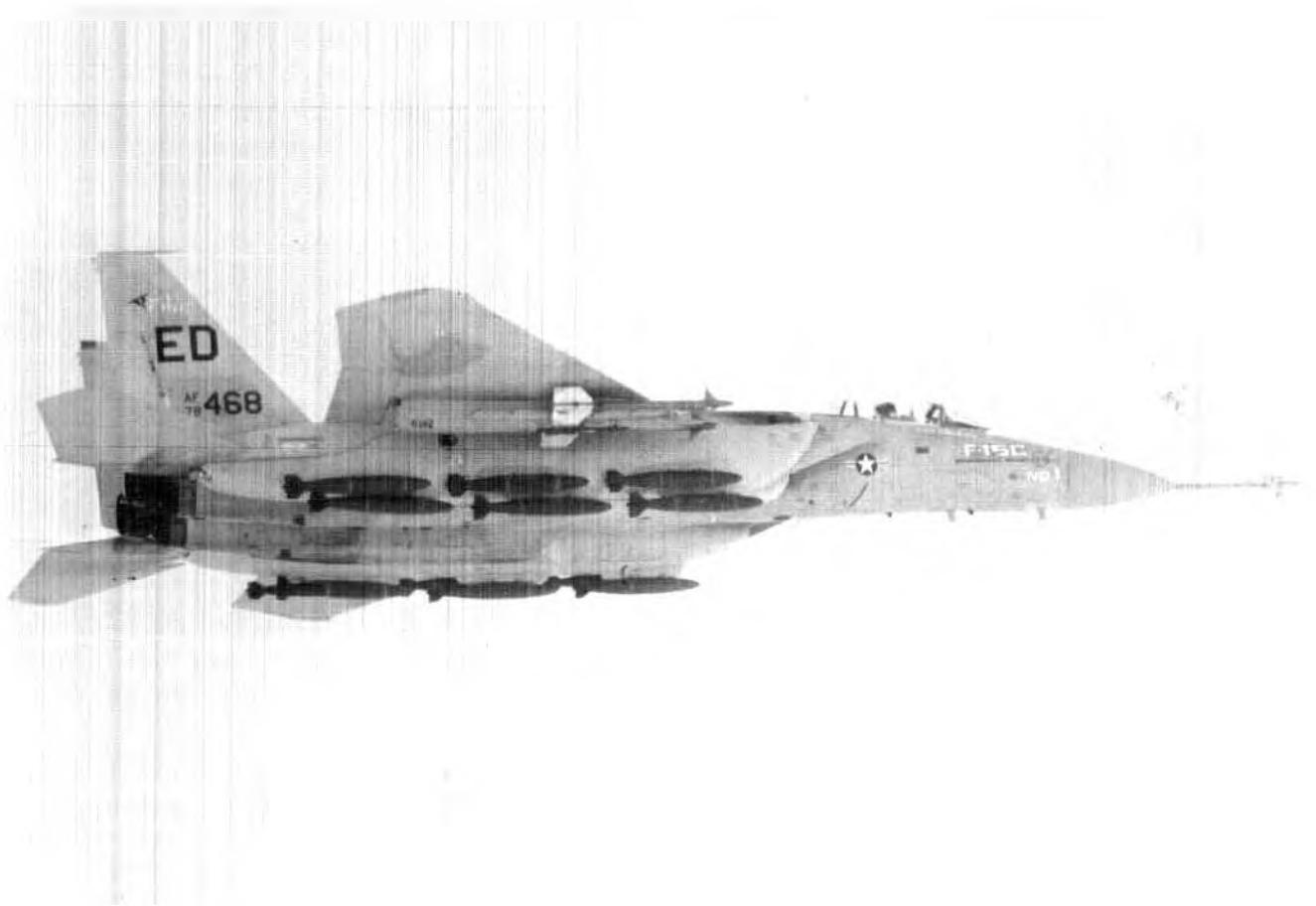


F-15C, 780527, is shown here with Sparrow and Sidewinder missiles for the air-to-air mission. The missile on the outboard wing pylon is a HARM anti-radiation missile which is used against enemy radars.
(McDonnell Douglas)

One of the other roles for which the F-15 is being considered is that of the "Wild Weasel" air defense suppression mission. This mission is currently performed by the F-4G Phantom. In this mission, the aircraft has the responsibility of locating, neutralizing, destroying, or suppressing enemy air defense radars and weapons. It is a very demanding mission, and requires an aircraft with high performance and survivability, as well as the capability to carry sophisticated electronics gear, sensors, and specialized weapons. Additionally, the DRFD aircraft, 71291, has been fitted with the chin pod like that carried by the F-4G. The pod carries the APR-38 "Wild Weasel" radar homing and warning system antenna assembly, or other systems.

The F-15 has the capability to carry the Shrike, Standard, and HARM anti-radiation missiles used in this mission. Now that the F-15E has been selected as the new dual role fighter, there is a good chance that the F-15 will become the next "Wild Weasel."

TANGENTIAL CARRIAGE



The "tangential carriage" of bombs on the conformal tanks reduces drag and extends range up to forty percent over that obtained with multiple bomb racks. *(McDonnell Douglas)*

The F-15 first flew with the "tangential carriage" on August 18, 1983, at Edwards AFB, California. A 12-flight evaluation program ended on August 31. Up to twelve 1,000 pound bombs or four 2,000 pound bombs can be carried. *(McDonnell Douglas)*

ASAT MISSILE

Perhaps the most advanced weapon planned for the F-15 is the anti-satellite missile shown here in this front view. Also visible is the special centerline pylon used for carrying the large missile. (McDonnell Douglas)

The anti-satellite (ASAT) program is in its infancy, with the first test firing made on January 21, 1984. This represents the first program to reach the hardware stage of development that is designed to destroy enemy satellites in orbit. The F-15 acts almost like the first stage for a large missile carried on the aircraft's centerline station.

The missile weighs 2,700 pounds, and is 17 feet long. It uses a Boeing short-range attack missile (SRAM) rocket motor for the first stage, and a Vought Altair second stage. No warhead was used in the test, and there was no actual target satellite. Although it is strictly a defensive weapon designed to protect the United States, and although it destroys only satellites and not people, the first launching generated unbelievable and absurd criticism from so-called "peace" advocates. These people seem to believe that the United States would be better off to disarm and leave itself open to attack by the Soviet Union. They think that somehow such disarmament would increase the chance for "peace," and they reject the concept of deterrence that has been successful in preventing nuclear war and defending freedoms and human dignity for over thirty-five years. The Union of Concerned Scientists attacked the launch of the ASAT missile, and stated that it could only decrease U.S. security. How it would increase U.S. security to remain vulnerable to attack, they did not say.

With the Soviet Union now developing combat and killer satellites of various types, this missile represents the first weapon to reach the hardware stage that has been developed specifically to defend against those satellites. (McDonnell Douglas)

FLYING IN THE F-15

Flying a mission in an F-15 certainly does not qualify one to write about what it is like to fly the aircraft, and that is in no way intended to be the purpose of this account. Instead, this article is intended to show what it is like for the layman to fly in such an aircraft. Each year, many people the world over flock to airshows and watch in awe as flight demonstration teams and individual aircraft put on impressive flying displays. You can almost see the wish in many of these peoples' faces that just once they would like to know what it is like to fly in such a powerful aircraft. But few people ever get to realize such an experience. Of those that do, many get a mere orientation ride "over to farmer Jones' field, left to the fork in the river, and back home again." Such rides usually provide little more flying experience than flying in an airliner from point A to point B. It is a rare instance when an outsider gets to fly on an actual training mission, and at the same time get some of the aircraft's capability demonstrated to him.

This author was fortunate to get such a ride, and an account of it follows. Hopefully, to some degree, it will help answer the question of what it is like to fly in the F-15.

The author (left) and Captain Lee Gerstacker just before the flight. (Bircher)

To get to fly in an Air Force fighter is a little more involved than walking into your friendly neighborhood fighter squadron and saying, "Take me for a ride in one of your jets." Much prior coordination and preparation is required. When this new edition of the F-15 Eagle in Detail & Scale was planned, I contacted Lee Gerstacker, known as "Stack" to his friends, about the possibility of getting a ride in an F-15 for the purpose of writing this account for the book. I had flown with Lee once before on a "Red Flag" mission at Nellis AFB when he was one of the Aggressor pilots there. I hoped that Lee, who had been reassigned to the 33rd TFW at Eglin AFB, could arrange for a flight in the F-15. I sent in the formal letter of request that was to go all the way to TAC Headquarters for approval, and Lee did the legwork that helped the request go through smoothly.

In the meantime, I got my Class II flight physical up to date, and went through altitude chamber training at Norfolk NAS. Then it was merely a question of waiting for Air Force approval and finding a time in the unit's schedule when it would be possible to fit me in. Finally, the flight was scheduled for March 2, 1983.

The author flew in this aircraft, F-15B, 76126. Mechanics are shown working on a radar vibration problem just prior to the flight.

The wing commander's aircraft of the 33rd TFW was "Stag 2" during the flight. It is shown here fully armed on display a few months earlier at the Eglin AFB open house.

but first there was other training and preparation to go through.

On March 1, I was taken over to a mock-up of an F-15 cockpit that was used for ejection seat training. I had been fitted with my harness and helmet, and wore these over my civilian clothes. I climbed into the seat and fastened in. First came a cockpit familiarization. Things I would have to know during the flight were demonstrated to me. These included hooking up the oxygen and communication connections, the G-suit connections, and how to get completely fastened in. Getting buckled into a fighter is a little more complicated than fastening a seat belt on an airliner, and it takes some practice. The F-15 was a bit different than what I had done in the F-5, so I had to go through it several times. There are two straps to the shoulder harness, a lap belt, and two connections to the survival pack. These last two gave me the most trouble. Once I got everything fastened, I learned how to get out of it quickly in case of an emergency ground egress. Should a problem occur when the aircraft is on the ground, I had to disconnect all of these connections, safe the seat and get out quickly. Important points were taught to me. For example, the intake ramps would be down if the engines were running, and if I stepped out on one of the ramps and slid off the end, I would fall in front of the intake of a running engine. If this happened, there wouldn't even be any pieces to pick up.

Seat ejection procedures were also covered. Most likely, if we had to eject, it would be a command ejection initiated by Lee in the front seat. If this happened, I had no choice in the matter - I was going out, like it or not. But what would happen if my seat failed to eject, or if something happened to Lee? I had to learn the procedures to eject myself, and, if my seat failed to eject, how to bail out. The way I felt about it, if I was going to eject, Lee would do it through command ejection. If he was going to stay with the aircraft, I was. But, if things got so bad he was leaving, so was I!

Besides the emergency procedures, other things were also pointed out. I was taught how to control the flow of oxygen, how to adjust the rudder pedals, and how to raise and lower the seat. If there was a canopy failure in flight, the back seater is really out in the windstream, and procedures call for him to lower the seat all the way down and bend forward. The proper way to safe and arm the seat was demonstrated. I was also shown how to lock and unlock the shoulder harness, so I could have a little freedom of movement. It seemed like an awful lot to learn for one morning, but we were not through yet.

Next, I was taken to an outdoor area for parachute training. Here I was hung in my harness as I would hang from a parachute, and taught what to do if I did not get a good "chute," and how to land on the ground, in trees, or in the water. If I became stuck in trees, I was taught how to get down. I was shown how to use the life raft and the emergency radio in the survival pack.

This completed the emergency training, and after lunch Lee took me over to the F-15 flight simulator for further training and orientation. Complete missions can be flown in the simulator, which is connected to a computer, but Lee was more interested in getting me ready for the flight. Standard procedures, rather than those used in an emergency, were now the focus of what I was learning. Lee taught me how to turn on and adjust the radar, then explained some of its capabilities and functions. Next came the radios and communications between cockpits. He explained the procedures he wanted me to follow. With this done, Lee had some symbology put on the radar scope so that I could learn what to watch for during the intercepts we would be flying the next day. Lastly, he let me "fly" the simulator a little. Flying straight and level, making some easy turns, and climbing and decending was easy. "Just like flying a Cessna," I thought. I even managed a slow roll of sorts, but two attempts at loops ended in disaster!

Everything was set for the flight which was scheduled for just after lunch the next day. I spent the morning talking to other members of the squadron, especially Mark Bircher, who was called Chesty. He would be flying on our wing during our flight. Chesty was a USMC Captain on exchange with the Air Force.

Prior to the flight, Lee filed the flight plan as flight leader. The flight was given the call sign Stag, with Lee flying Stag 1 and Chesty flying Stag 2. A standard flight plan to the training area was filed, but Lee asked for a modification to accommodate my request for a maximum performance take-off straight up to altitude. A final request for the max performance take-off would have to be made from the aircraft on the ramp.

Next, Lee conducted the pre-flight briefing with Chesty and me, going over the entire flight from start to finish. He planned to fly down to Tyndall AFB after the mission to do some sight-seeing for my benefit. Weather, call signs, procedures, altitudes, and safety were all covered in the briefing.

Finally it was time to go. We got suited up, and I was helped into my G-suit that had been fitted to me the day before. I put my harness on and placed my gloves, helmet, and two cameras in a flight bag. The three of us got into a van with several other pilots for

the ride out to the flight line.

The van stopped in front of an aircraft, and the driver called out a serial number. One of the pilots got out and the van proceeded. It stopped again, and the driver called out 33. "That's me," said Chesty, and he got out.

"That is the wing commander's aircraft," I thought. I was lucky that it was going to be the aircraft Chesty was going to fly since it had special markings and was named "Gulf Spirit."

We next stopped at 126, and Lee and I got out. Unfortunately, there was a problem with the radar, and it was opened up. This delayed us a bit, and Chesty walked down the line to talk with us while we waited. He told Lee that his aircraft did not have the centerline 600 gallon fuel tank attached, so they decided that Chesty would come straight back to Eglin after the intercepts, rather than going down to Tyndall.

Although the radar did not check out perfectly, Lee said it was good enough for the flight, and I climbed in. He checked me out to make sure I had fastened in properly, and then he climbed in. We got the communications working between us, and Lee turned on the tape recorder that was to record our voices and the voices of everyone we talked to or who talked to us. This would provide an excellent account of the flight.

When the communications came on, the first thing I heard was a female voice saying, "warning, warning, warning." It was the F-15 warning the pilot to check something. It could mean an engine overheat, a certain fuel state, or, in newer F-15s, the female voice will tell the pilot if he is putting too many G-forces on the aircraft.

Lee started the right engine, and, as it started, the right intake ramp lowered. He explained how simple it was to start the engines through the use of finger lifts on the throttles. The left engine was started, but the ramp failed to come down. Lee asked the crew chief, who was plugged into the communications, to check it out. Shortly the ramp dropped, and Lee said, "That's good chief. I don't know what you did, but you did good!"

"Bert, check your arm's out of the way - I'm closing the window," Lee cautioned, and I reported, "Clear." Down came the canopy, and it locked in the closed position. Lee then started typing into the computer telling it where the aircraft was on the ground and entering the destinations we would be flying to. At this time he also put the title on the gun camera film which includes the pilot's name, date, and mission. While he was doing this, I was looking around, and was amazed by the visibility and how high I seemed to be sitting above the ground. It was quite different from the little F-5. I told Lee that I was a bit concerned. He asked why, and I told him that it was because I didn't feel as excited as I had the first time I flew with him. I was completely relaxed this time, and I had expected some "butterflies." "It is easier the second time around," I said. There was never any fear or apprehension on this or the first flight. I was impressed with Lee's ability and attitude as a pilot, and trusted him completely. During that first flight at Nellis, while chasing an F-4, we had flown straight down from 20,000 feet, did a 6½ G pull-out at the bottom, and leveled out only 100 feet above the ground. Riding along in a fighter going through that kind of maneuver adds a completely new dimension to the word "trust!"

Lee asked me to move my knees out of the way so he could check movements of the flight controls. Next, we put our hands in view so the ground crew could remove covers from the AIM-9 seeker heads. Following this Lee checked the speed brake and flaps, then the flight controls again. Next he checked the brakes, and, once this was done, he told the crew chief that everything looked good and that he could disconnect his commo line from the aircraft.

"Bert, you can go on and turn your radar on," Lee said.

"Ok, it's on," I reported. Lee then called for clearance from Eglin tower. The clearance was for a standard departure, so Lee again requested the max climb to 23,000 feet. Next he checked with Stag 2, and Chesty reported he was two minutes from being ready to roll. Lee asked me if I was comfortable, and I told him I was very comfortable. His concern for how I felt throughout the flight was very reassuring. While we waited, Lee told me to go ahead and adjust the rudder pedals to my liking.

(It should be noted that an F-15 on alert can be airborne in a matter of minutes, but for training flights the check-out procedures take a little longer.)

Lee called in that Stag 1 and Stag 2 were ready to taxi. The tower gave an altimeter setting of two, niner, niner, niner, wind two, three, zero at one, six, and told us to taxi to runway one, two. We began to taxi and Lee told me we weighed 44,000 pounds. Yet we taxied with the engines in idle. We pulled into the last check area to make one more check that everything worked as advertised.

"Check your harness and arm your seat," Lee said.

"My seat is armed," I reported as I flipped the lever.

"I heard it," said Lee. He had told me earlier that he wanted me to flip the arming lever in such a way that

Captain Bircher raises his hands into view as "last chance" checks are made prior to flight.

he could hear the click. It gave me a strange feeling to know I was sitting on a seat that could literally blow me out of the aircraft. Again Lee checked the flight controls, and reported to Eglin that we were ready to go. Eglin gave the frequencies, fixes, and squawks, then told us we were clear for the maximum performance take-off. Now, for the first time, I was sure I was going to take off straight up.

"Forty-four thousand pounds and we are going to go straight up!" I said.

"We'll work at it, " Lee replied.

We taxied out and held short at the end of the runway, awaiting our turn. An F-15 came in for a landing, and I noticed the BT on the tail. "Bitburg," I exclaimed.

"Yes,", Lee agreed. "They are in here shooting WSEP. You can see all their airplanes parked over there at right, two-clock, by that pile of dirt." (WESP stands for Weapon System Evaluation Program. In this program, random F-15s and missiles are selected for a firing exercise that checks equipment reliability and pilot proficiency.)

I stowed one camera and placed the other in my lap, reporting to Lee that it was in my lap to stay until we were going up. We would be pulling some G's at the end of the runway, and it would not be very good to have them flying around the cockpit. Once we were going up, I was going to try to take pictures over my shoulder.

While we waited near the end of the runway, Lee noticed that my rate of breathing had quickened, and he cautioned me to slow down. It seemed that the excitement that I did not feel earlier was now with me! Lee warned that breathing too fast could cause me to get too much oxygen in my system. Then my body would try to get rid of the oxygen, causing me to breath faster and faster. This would cause hyperventilation, and I could end up passed out. I tried hard to follow Lee's advice!

As we continued to wait, Lee explained that the max performance take-off was almost "aerodynamically illegal!" "It's all brute power," he said. He told me that there was so much pitch authority in the F-15 that you could over-rotate the aircraft on take-off and bang the engines on the concrete. Likewise, on landing, it was also possible to drag the engines on the runway during aero-breaking, and he had cautioned Chesty about this during the briefing.

Finally we got clearance for take-off, and Lee taxied out on to the extreme end of the runway, and Chesty pulled up next to us. The excitement really began to build.

"You ready, fella?" Lee asked.

"I'm ready," I said.

"OK, we're going to do a quick engine run-up, take a picture, and make sure everything works. "Eglin departure, Stag 1 will be rolling in fifteen seconds, max take-off to two, three, zero."

"Stag 1, roger, report airborne," came the reply.

From this point on, Lee did a great job reporting to Eglin tower and to me everything that was going on so I could see just how impressive the take-off was.

"OK, here we go! I'll run it up to mil (power), let the motors stabilize, light the burner, other burner, and both burners are going."

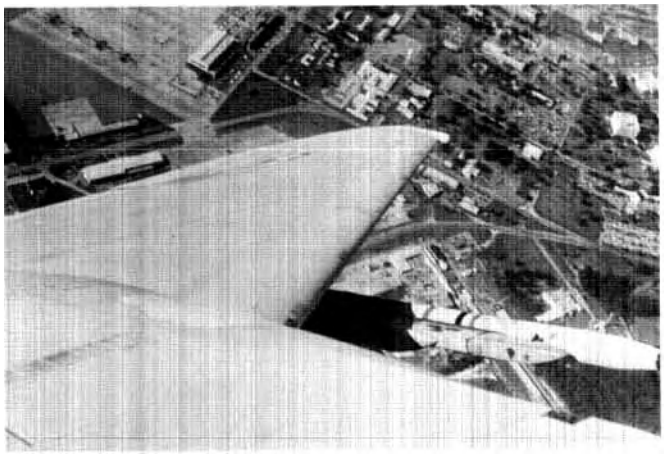
My head was forced hard back against the seat, and I made no attempt to lean forward and look around as I had in the F-5. In less than five seconds, Lee began reporting, "We're at a hundred fifty knots, gear coming, two hundred knots we're only three thousand feet down the runway. Stag 1 is airborne, two hundred, fifty knots, three hundred knots, (two second pause) four hundred knots." All of this happened as fast as the average person could read that report. In checking the tape, the four hundred knot report was only nineteen seconds after he had said that both burners were going!

"Are you ready to go up?" Lee asked.

"Go," I replied as I braced for the G's.

"Here we go," Lee said as he continued the reports.

I watched the G meter go to 4½, then back to 1. In my haste, I quickly fired some shots over my shoulder, but we had not quite reached the vertical climb yet. I should have waited about another three or four seconds until we had achieved a 90 degree pitch-up. But I quickly returned the camera to my lap and told Lee I was ready for the Gs I would experience as we came out of the climb inverted at the top. In the meantime Lee kept on giving me a running account of what was happening. As we started up, he reported that we were out of 3000 feet before the Gs had



This view was taken "over the shoulder" as the F-15 climbed out of Eglin AFB on a maximum performance take-off. The aircraft achieved a 90 degree pitch-up attitude during the take off.

returned to 1 and I had started taking my pictures. It was like someone had hung us up by the nose and dropped the earth beneath us!

"How's that, you getting some pictures?" Lee asked as we zoomed straight up.

"It was like any other flying, we were just going straight up!

"Stag 1 is in a left turn." Lee reported as we came out inverted, then rolled out level. In checking the tape, only forty-eight seconds had elapsed since we had started down the runway!

"How did you like that?" Lee asked.

"Ah, beautiful, Stack, beautiful!" I exclaimed.

"Not bad for an airplane, huh!" he continued.

"No, not bad at all," I agreed.

"And you will see Chesty coming up soon. In fact, there he is back at our left seven," Lee reported.

"I've got him," I replied as I saw the other F-15 still climbing out of Eglin. The base was almost right below us, yet we were 23,000 feet up. Only now did Lee bring us back out of burner to mil power. He contacted Jacksonville Center and reported that we were level at two-three zero. We were heading north toward the practice area, and Lee began calling out landmarks.

"There is the town of Crestview," he said, "and the first bay you see off to the left is Pensacola. The one further off is Mobile, about another one-hundred, fifty miles away."

"Where is Chesty?" I asked, looking around. "There he is, I see him," I said answering my own question.

"Are you getting pictures of him showing up?" Lee asked.

As Chesty joined up on our wing, he was so close that all I could get was the nose of the plane from the intakes forward. "He is too close," I said, so Lee had him split off from us. "That is too far, have him cut the distance in half." Lee obliged, and Chesty moved in just right. For the rest of the flight to the practice area, I took photos as fast as I could from all angles. As we arrived in the area, we flew in circles, first one way, then the other. For some shots we got high on him, and for others he was high on us as we circled.

"Got all you need?" Lee asked.

"I would like to get some from directly below if I could," I replied. Lee passed the lead to Chesty, and we flew down under him. As I looked up to shoot I had an F-15 right in my face! "That's too close," I said, "drop it down a bit." Lee eased down a bit and allowed me to get the shots I wanted.

"Chesty" joins up on the right wing after he completes his maximum performance take-off.

This photo shows how close the two aircraft flew in formation. The photograph was taken through a 50 mm lens, yet this is all of the aircraft that could be photographed. The photograph has not been cropped.

View taken looking straight up as we zoomed under Captain Bircher. The reflections caused by the canopy are visible. Note the ACMI pod under the left wing, and the AIM-9L under the right wing.

While all of this was going on, I could hear Jax Center talking to the other traffic, to include Eastern, Republic, and other airliners, as well as private flights on instrument flight plans. Otherwise, it was perfectly quiet. I could not hear the engines at all. I was relieved that I had no dizzy feelings or motion sickness. I thought if I could get through the climb-out and fly the turns in the area that I would be all right.

Lee asked me to stow the cameras and prepare to get on with the intercepts. We were working in an area called Rosehill, which is in Alabama east of Dothan. It is about thirty miles wide and forty miles from top to bottom. Lee sent Chesty north to his start point, and we headed south to ours. During the spirals we had flown while I was taking pictures, we had dropped to 11,000 feet in altitude. As we headed south Lee said that he would show me a little bit about how the airplane handled.

"Want to fly through an aileron roll?" he asked.

"Who me?" I replied.

"I'll fly it, you watch," he said.

As he flew it, Lee described it. "Roll left, stop, roll right, stop, how's that?"

The 360 degree rolls seemed to take about one second each, and it looked more like the world spun around the aircraft rather than the aircraft rolling. It did not seem quite as fast as I had remembered in the F-5, but it was fast enough! I had expected the first roll, but did not know Lee was going to roll back the other way. Therefore I went through the second roll with my head almost against the canopy! It caught me off guard, and all of a sudden it seemed as though a sprinkler system had gone off in my helmet. Sweat was pouring down my forehead and into my eyes. Since I was wearing glasses that were pressed hard against my face by the helmet and mask, I could not get my fingers under them to wipe my eyes.

"I don't want to do much of that!" I said to Lee. The sweat began to run down my back and even into my boots.

Lee explained that he was going to do a climbing chandelle into Chesty for the first intercept run. As he lit the burners, Lee counted the five stages lighting, and I could feel each one of them in quick succession. The next thing I knew we pulled a lot of G's and were flying straight up again. In eleven seconds we were up to 20,000 feet, and heading north.

Lee tried the radar and started to show me what was happening.

"You see that triangle on the scope?" he asked. That is the target we are going to, our bullseye."

He put the aircraft on autopilot, and reported to Chesty that we were eighteen miles south of his point. We were acting as a target for Chesty. Then Chesty called off a "Fox 2," which is a Sidewinder missile launch, as he approached to a mile and a half at our dead six. Lee called a "tally-ho" on Chesty and said he was going to break right and down. As he did, he called to Chesty to check fuel, reporting ours was 10.1, square balanced. Chesty replied that he was 7.7 square balanced. This is a check made several times during the flight to ascertain the amount of fuel remaining, and "square balanced" means that the fuel is evenly distributed in the aircraft. If it isn't, the aircraft can get the weight of the fuel so unbalanced that the aircraft will no longer fly. Lee pointed out to me that we still had twice as much fuel as the F-5 carried.

We headed back in a right hand turn at 3.5 G's. The aircraft was smooth, and we were flying at only 375 knots. As we returned to our start point, Lee tried to show it to me on the radar.

"If you look at the number two needle on the HSI (horizontal situation indicator) you can see that our

point is one, nine, zero at seventeen miles."

"I can't see much of anything right now," I said as I still could not clear the sweat from my eyes. With a lot of blinking I could see the radar scope enough to see what he was talking about. The mask seemed to be almost smothering me, and I felt rather uncomfortable.

Lee checked the radar, and found that it would not bitcheck. This is a built-in test that would not work, but, despite some vibration in the antenna, Lee said it was working all right. He called to Chesty that he was ready, and suggested a no lock vertical conversion.

Lee began calling off the intercept to Chesty as follows. "I'll call everything off your point. Stag 1 is in a right turn through west, cleared south. You have a single bogey, one, eight, zero, at twenty-seven, right turn through west to north." What Lee was doing was acting as a ground controller (GCI) for Chesty.

"Stag 2, contact, call angle only," replied Chesty.

"Single contact, bearing one, eight, five, for twenty-eight, right turn through three, two, zero." Lee called, then he pointed Stag 2 out to me on the radar scope. Although I could hear and follow what was going on quite well, I still had a hard time seeing, and was experiencing some dizziness.

"Target one, nine, zero, twenty-five," Lee reported as he continued with his calls.

Chesty continued his approach to seven miles for his intercept, swung around behind us and again called off a "Fox 2."

For the third intercept, Lee dropped to 11,000 feet, and sent Stag 2 to 20,000 feet. He instructed Chesty to come straight down at us during the intercept. We returned to the south point, and Chesty to the north point. As we did, Lee called our fuel as 9.1 square balanced, and Chesty reported 6.5 square balanced.

Lee realized that I was uncomfortable and suggested that I take the mask off and blow some 100 percent oxygen over my face. I opted not to, but, in retrospect, I wish that I had. He asked me if I wanted to go on down to Tyndall. I though about it and decided not to since I was having a hard time seeing, and knew I was not going to be able to take any pictures. My stomach was fine, but I was still rather dizzy. I was still able to follow the mission, and we continued with the intercept.

"Stag 2, your target is bearing one, seven, zero at twenty-four off of your north point. From you I am about three, zero, five at about ten miles." As we continued the intercept, Lee called to me, "Bert, check up there at left, nine, nose high, that's where he is."

After we concluded the intercept, Lee and I headed for home. He asked me how I felt, and I told him that I was feeling better. We checked with Jax Center, and headed back at 12,000 feet.

Lee asked me if I wanted to fly the plane or just watch. I told him I would just sit, and that was hard to do, because I really wanted to fly the aircraft. But considering my vision problem and light head, I thought it better not to. On a later flight in an F-4, I removed the mask when I got a little dizzy, and it solved the problem. Had I taken Lee's advice on this flight, I would have probably been able to try my hand at flying the aircraft. As we returned to Eglin, I listened to the controller call out the altitude and course changes to Lee. It was like I had done as a private pilot in a light plane. I really wanted to do it, but resisted the urge to try.

We headed for a straight-in approach to runway one nine, and along the way Lee pointed landmarks on the ground. He told me that the radar had fixed itself just fine. He opened the speed brake and lit the burner on the right side to burn off some fuel and bring our landing weight down.

As we approached the runway, Lee lowered the gear and flaps, and flew the aircraft to a smooth touchdown. He held the nose high for aero-breaking. He instructed me to safe my seat and turn off the radar scope as we continued down the runway. Finally I took off the mask, something I should have done a lot earlier.

After Lee parked the aircraft, I unfastened and climbed out, but I was soaked, dizzy and wobbly in the knees. The flight had lasted a little over an hour, and I felt as though I had spent the time on a roller coaster. The flight was nothing compared to the yanking and banking that goes on during the "dog fighting" type of aerial combat, but it had been enough for me. I went back to Lee's office and sat down on the couch for a while. I was more than a bit embarrassed about it, but Lee assured me that I had done well for someone who was not used to it.

In about a half an hour I felt fine, and went home with Lee for dinner. We listened to the tape together, and I was then really able to appreciate the experience of the flight. I had learned a lot, and the F-15 proved to be quite a performer. Lee said he felt unbeatable in the F-15, and it was obvious he was sold on the aircraft. So were the other pilots I talked to. The F-15 instills a much-needed confidence in its pilots that helps them be the best they can be. It is unfortunate that more American citizens cannot have the experience I did. It would show them the pride and professionalism of our armed forces, and would undoubtedly cause each citizen to have more pride and offer more support to these people who protect our freedoms.

MODELER'S SECTION

PRODUCT REVIEW POLICY. In each of our publications we will try to review kits and decals that are available to the scale modeler. We hope to be able to review every currently available kit that is useable by the scale modeler. Kits produced in the past that are no longer generally available, and those more intended to be toys than accurate scale models will not usually be covered. Additionally, we do not intend to give a complete step-by-step correction-by-correction account of how to build each kit. Instead we intend to give a brief description of what is available to the modeler, and point out some of the good and not-so-good points of each kit or product. In this way we hope to give an overall picture of what the modeler has readily available for his use in building the particular aircraft involved.

KIT REVIEWS

1/144th SCALE KITS

LS F-15A, Kit Numbers A 112 and A 121

The LS kits are the same except for markings, and are easily the best of the 1/144th scale kits. Basic shape, size, and proportions are correct, except that the probes on the tops of the vertical tails are the same size. The one on the right should be smaller. Because of its size, this model lacks much detail. There is no cockpit, no pylons, and no external stores except for four AIM-7 Sparrows. With the use of the LS 1/144th scale external stores kits, some scratch building of pylons and rails, and a little patience, the appearance of this model can be greatly enhanced.

The canopy is thick, but is the only accurate one in the 1/144th scale kits. The speed brake has the external strake, and, for most models, will have to be removed. Surface scribing is recessed and very basic. It is not overdone. Fit is quite good.

The landing gear is simple and lacks detail. However, it looks in scale. Other missing details include the lack of the gun port, in-flight refueling receptacle, and no tail hook is scribed in. But, with detailing added by the modeler, this kit is the only one in 1/144th scale that is anything like an accurate representation of the F-15. We recommend this kit.

Otaki Kit Number OT2-18

This kit represents the first F-15 prototype, and is quite crude when compared to the LS kit. It has the original blunt wing tips, but the snag in the leading edge of the stabilators has been added. The speed brake is the old smaller type.

The canopy looks like it belongs on an F-4, and it has braces on the forward part of the windscreen. These were never present on an F-15. Proportions, shapes, and details look all wrong. The fairings for the engines on top of the fuselage are too pronounced. There is an in-flight refueling receptacle on the left side of the wing root as there should be, but there is also one on the right side! Again, no gun port is included. The only stores are four Sparrows, and they hardly resemble the real thing. Other details, particularly the landing gear, are also crude. This kit simply does not build up into an accurate scale model.

Revell Kit Number 1046

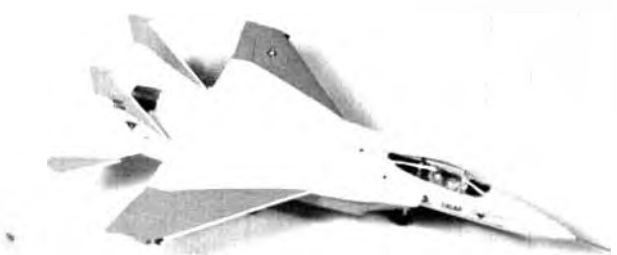
This kit was formerly issued by Crown, and it is the worst of the 1/144th scale models. Shapes, proportions, dimensions, and detailing are all wrong. Even though a centerline tank is provided, its shape is so bad that it could not be used with the LS kit. The missiles are even worse. The canopy is totally wrong.

There are some good kits in the Revell 1/144th scale line, and some bad ones. This is one of the bad ones, and is not recommended for the serious modeler.

1/100th SCALE KIT

Entex, Mania, Sanshoh Kit

This kit has been released under all three names, but is the same in any case. It is a nice representation of one of the prototypes, and has the original blunt



The Mania 1/100th scale F-15 is a nice kit, and it represents one of the prototypes.

wings and small speed brake. The snag in the leading edge of the stabilators is represented.

On the minus side, there is no in-flight refueling receptacle represented, and, since the gun was not present on the prototypes, none is represented in the kit.

Accuracy-wise, the model is quite good. Shape and proportions are excellent. It is cleanly molded, fit is excellent, and construction is simple. The only stores are the AIM-7s, but these are well done. The canopy is clear and accurate in shape.

Considering that this kit came out early in the Eagle's research and development program, it is quite accurate. We recommend this model.

1/72nd SCALE KITS

Airfix/MPC (formerly US Airfix) F-15A/B, Kit Number 4406

In our estimation, this is the best overall model of the F-15 in 1/72nd scale. It can be built as either a single-seat F-15A or a two-seat F-15B. The cockpits have nicely molded seats and control columns. The only real error in the cockpits is the rear instrument panel, which is an exact copy of the front. It should be quite different in shape and number of instruments.

The kit comes with three 600 gallon fuel tanks, four AIM-7s and four AIM-9L Sidewinders. The speed brake is generally correct, but, as is the case with other kits, there is a well for it molded into the top of the fuselage. Scribing is of the fine raised type, and is quite accurate. Details such as the landing gear and pitot tubes are accurate and delicate. The fairings on the tops of the vertical tails are also correctly sized, but the afterburner nozzles seem a bit too large in diameter at the open end.

This is an excellent kit, and we recommend it highly.

Airfix/MPC F-15 kit built as an F-15B.

Minicraft/Hasegawa F-15A Kits

As originally released, this kit had the square wing tips, and short speed brake. It was then released twice with the revised wing tips and speed brake. The only difference between these two releases was the decal sheet that was included.

It is one of the better models available of the F-15. In the newer releases, it has the strake on the speed brake, and this has to be removed in most cases. Scribing is of the raised type, and is generally accurate with a few flaws such as an incorrect grid pattern on the intake bleed doors. The refueling receptacle is also omitted from the scribing. The main gear wheels are incorrectly done in regard to the spoke pattern, and the gun port is the wrong shape. There is no representation for the bay behind the seat.

Four AIM-7s and a centerline fuel tank are provided, but no wing pylons or stores are included. In our estimation, this is the biggest shortcoming of the kit. The two pitot leads on the sides of the nose are also missing. As with most F-15 kits, there is a well in the top of the fuselage for the speed brake. On the real F-15, the speed brake fits down flush on the top of the fuselage. This is of no concern if the model is built with the speed brake closed.

The scale, accuracy of outline, and other basics of this kit are generally good, and we recommend it.

Minicraft/Hasegawa F-15A in 1/72nd scale.

Minicraft/Hasegawa F-15B, Kit Number 1160

This two-seater is a rework of the single seat kit covered above. The same comments apply here, except for the following changes that have been made.

What Hasegawa did was to mold a new "tree" with new parts. Included is a new upper fuselage with two cockpits instead of one, a new speed brake with no strake, a new two-place cockpit interior, new instru-

ment panels, a second seat and a brace for the canopy. Of course there is a new two-place canopy. Unfortunately, as was the case with the single-seat kits from Hasegawa, there is no cockpit detailing. The in-flight refueling receptacle has been added to the proper location, but, otherwise, flaws, such as the incorrect gun port, still exist. This is a good kit, but it could be a lot better. According to the 1984 catalog, the kit is to be re-released as an F-15B/D. Perhaps some of the shortcomings will be corrected then, just as Hasegawa improved their single-seat kit when they released it as an F-15C. Also scheduled for release in 1984 is an F-15E, which will also probably be based on this kit to some degree.

Minicraft/Hasegawa F-15C, Kit Number 1214

This is a rework of the original F-15A kits covered above, but Hasegawa has made a number of improvements and additions, and they are to be commended for this. Too many times kit manufacturers fail to correct or improve their models in subsequent releases.

There is a new upper fuselage with the in-flight refueling receptacle added. More importantly, the bay behind the seat has been included even though the black boxes are not present. Detailing this area would be easy, and now an open cockpit is simple. It was almost impossible in the F-15A kits. This time the gun fairing was also improved, and, although it still isn't quite right, it is much better than in the F-15A or F-15B kits covered above. Wheels are much more realistic, and the cockpit detailing has been improved. However the control column (that attaches to the seat!) needs to be replaced.

Wing pylons with Sidewinder launch rails are now included, as are some AIM-9L missiles. This adds a lot to the finished model. The centerline tank is included as it was on earlier releases. The one bad flaw that remains is the well for the speed brake, so build the model with the speed brake closed. It is also a shame that Hasegawa did not redo the afterburner nozzles without the "turkey feathers," but this is something all of the manufacturers have missed.

Monogram F-15A, Kit Number 7580

Monogram's 1/72nd F-15 kit appears to have been put together rather quickly, and it suffers from several inaccuracies and shortcomings. In no way is it in the same class as the 1/48th scale F-15 that Monogram has released. However, it does have some positive points.

While the wheels are not quite right, they are closer to being right than some others in 1/72nd scale. Monogram also made an attempt at representing the area behind the pilot's seat. It is not accurate, but it is there, and, with some work, can be made to look right. There are intake covers which are also nice.

The model represents an early F-15 with the square wingtips and small speed brake. Scribing is the raised type, and a bit on the heavy side. The gun port is wrong, and the refueling receptacle is left off. A centerline tank is provided, as are AIM-7s and AIM-9s. But it is hard to believe that these AIM-9s are from the same company that produced the jewels in the 1/48th scale F-15 kit.

There is a radar provided, but the antenna looks more like an F-4D radar than the flat F-15 type. This can be corrected with a flat disc of plastic. The pitot tubes are huge, and would best be replaced with ones made from scrap plastic and wire. The kit does have the braces for the main landing gear doors which are not provided in any other 1/72nd scale kit. This is a plus if you are building an early F-15 on which these doors remain open when on the ground.

Monogram has now taken this kit and reworked it into an F-15E. That kit is covered next.

Monogram's 1/72nd scale F-15E. (Monogram)

Monogram F-15E, Kit Number 5434

This is a major rework of Monogram's earlier kit covered above. A lot of improvements have been made to it, and it has been converted to the F-15E DRFD configuration.

Among the improvements include a new forward fuselage section that provides both cockpits. The floor and console "tub" for both cockpits is provided as a single piece. Instrument panels are included that have raised instrument details. Other details are scribed on the consoles and the sides of the cockpits. Nice seats and control columns are also provided. In

short, the model has the best cockpit detailing that we have seen on a 1/72nd scale F-15 so far.

The other big area of change includes the ordnance stores. New AIM-9L Sidewinders replace the crude ones found in the earlier kit. The Sparrows are gone completely. Conformal fuel pallets are provided, along with eight 500 pound bombs and two 1000 pound bombs. A 30 mm gun pod is also included, and this replaces the 600 gallon tank on the fuselage. New pylons and bomb racks are supplied for this ordnance.

Monogram did not improve on the oversized pitot leads, and the same wheels are included as before. We suggest replacing these parts. Otherwise, this is an excellent kit, far better than the first release, and we recommend it.

Revell F-15A, Kit Number H-254

This kit is a re-release of an earlier kit (H-257). In this later kit, Revell changed the shape of the wing tips to the newer style, and they added wing pylons with Sidewinder missiles and 500 pound bombs. However, no external fuel tanks are provided. The model also has the older speed brake, and this must be changed in most cases. Correcting this can be done by filling in with putty around the speed brake, then rescribing the new brake following the drawings in this book.

Scribing is of the recessed type, but is not as crisp as it should be. The cockpit lacks detail, and the control column is completely wrong. The seat comes closer to representing an Escapac seat than the later ACES II.

The wheels are totally wrong, and should be replaced. Small parts, such as the landing gear struts, are poorly detailed and leave a lot to be desired. Launch rails for the Sidewinders are missing. In short, this kit does not measure up to the other kits in 1/72nd scale as far as the serious modeler is concerned. Accuracy and detailing are just not there.

1/48th SCALE KITS

Fujimi F-15A, Kit Number 5A27

While it is not without its errors, this is basically a very good kit. Parts are nicely molded, flash free, and the scribing is well done. It has the new wingtips and speed brake, but the speed brake has the strake which is no longer used on production aircraft. This is easily removed if necessary for the particular aircraft you are modeling.

The area behind the cockpit is provided but is inaccurate. It can be corrected with a little effort. The radar is also present, and is pretty close to looking like the real thing. A little detailing will help. Like other kits, the main gear wheels are wrong, the seat needs correcting, and a mechanism for raising and lowering the canopy is present behind the seat. Unfortunately it does not exist on the actual aircraft. The strakes above the rear AIM-7s are missing, so they must be added from scrap. The AIM-7s are not too bad, but the AIM-9s should be replaced.

Other stores are complete. There are three 600 gallon tanks that require some filling around the notches when attached to the pylons. There are also outboard wing pylons with ECM pods supplied. On the centerline pylon the tank fin is too far forward and therefore does not line up quite right with the rear of the pylon.

But this is basically a good kit, and we recommend it. While it is expensive, it will build up into a model well worth the expense and effort that must be put into it.

Fujimi has recently released an update of this kit. It was not available to us at press time, but we understand it has the F-15C/D style wheels. However, the afterburner nozzles still have the "turkey feathers." No other information was available at press time.

Fujimi 1/48th scale F-15A.

Minicraft/Hasegawa F-15s, Kit Numbers P8, P9, and and P10

These three new kits were not available for review at press time, being scheduled for release over the next year. Kit P8 will be the F-15E DRFD, P9 will be an F-15J, and P10 will be an F-15C. We only hope that these three kits are done to the standards of the current releases of Hasegawa's excellent F-4 Phantom kits in 1/48th scale. If they are, these promise to be superb models of the F-15. Hopefully, Hasegawa

will include afterburner nozzles that do not have the "turkey feathers," and, if so, this alone would make the kit worth buying. The "turkey feathers" have been gone for quite some time, and an up-to-date model of the F-15 can no longer be built without a lot of scratch building by the modeler. We look forward to these kits with eager anticipation.

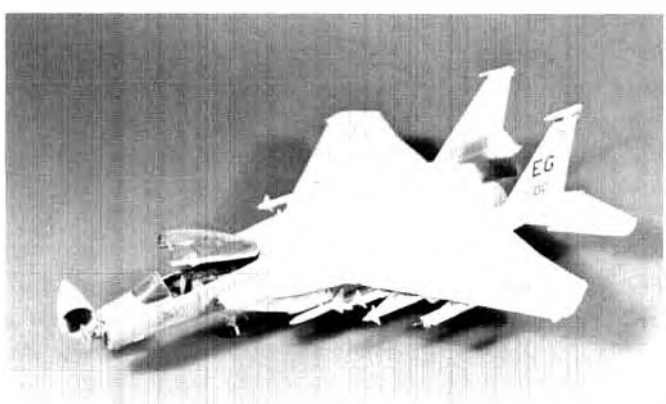
Monogram F-15A, Kit Number 5801

We will start right off by saying that, in our opinion, this is the best kit for the money of the F-15 that is now available. Although the Tamiya kit is excellent and has recessed scribing which we prefer, you can buy four of the Monogram kits for the price of one of the Tamiya kits plus a few pennies.

The scribing is very delicate, accurate, and is of the raised type. The cockpit is complete and up to Monogram's standards. This includes the area behind the seat which really looks like the real thing.

Other details include a radome that can be shown in the open position to reveal the detailed radar. The landing gear struts are a bit thicker than Tamiya's to add strength to support the model since there are no wire supports, as with the Tamiya kit. It is difficult to say if the struts are too thick. At any rate, they are highly detailed and look the proper size on the completed model. The forward nose gear door, and the forward doors on the main gear are molded in the closed position as they would appear on production aircraft.

External stores include four AIM-7 Sparrows, four AIM-9L Sidewinders, an ALQ-119 ECM pod, and a centerline 600 gallon fuel tank. All are accurate and cleanly molded. Other features include the retractable boarding ladder that can be shown in the open position, an accurate speed brake with no well molded in the top of the fuselage (the first kit to have this accurately represented), and the canopy can be displayed open or closed.



The Monogram F-15A is the best kit available of an F-15A for the money.

On the minus side, the seat is not as good as it should be, being too narrow and representing the older Escapac seat. The strakes above the rear Sparrows are not right, and we would suggest replacing them with new ones made from plastic card. The ones in the kit are too thick, and about three times too wide. One other point on the minus side is the part of the fuselage that extends out to the rear between the two engines and above the tail hook. From the underside, Monogram left this hollow due to molding considerations, but in actuality this is a solid piece. The problem is easily remedied by covering the hollowed-out area with a thin plastic card before painting.

This is truly an excellent kit at a most reasonable price. We highly recommend it.

Revell F-15A, Kit Number H-288

In our opinion, this kit simply is not as well done as the other F-15 kits in 1/48th scale. This is only an opinion, but it seems to be shared by many other modelers we have talked to. Scribing is acceptable, but not as crisp as it could be. The parts have some flash, and are not as sharp as one might expect. While accuracy and proportions are generally correct, it is the poor molding that causes this kit to be less attractive than others in 1/48th scale.

We will not belabor the point. Suffice it to say that this kit does not measure up to the other F-15 kits or some of the other Revell kits in 1/48th scale. Much work would have to be done to make this into an outstanding model.

Tamiya F-15A, Kit Number MA-124

Tamiya's F-15A benefits from very accurate mold-cutting and careful design, sharp and totally engraved detail, and paneling with a few raised panel hinges. This Eagle offers improvements over Revell and Fujimi: a far more accurate contour behind the wing root leading edge "cone," correct wing chord, a cannon and true forward gunport location with gun gas exhaust grills on intake top, actual wheel spoke pattern, far more accurate gunsight, seat and separate after-cockpit side wall detail (both canopy support and actuator), as well as an accurate radar array under a pop-off nosecone. All detail is more accurately located and executed with fine precision.

The speed brake is not as accurate as it could be, and the strakes above the rear Sparrows are missing. The fuselage is marginally too wide at the cockpit, and this makes for a poor canopy frame fit. Other than

these points, it is hard to fault this excellent kit. Perhaps the only other shortcoming is that the instrument panels and console are detailed with decals rather than having raised details.

An innovation among recent kit releases is the inclusion of shaped wire inserts to strengthen the split landing gear struts which are super detailed. Four Sparrows and four Sidewinders with correct clamps and pylons as separate pieces complement two ALQ-119 ECM pods for the outer pylons. However these are not normally seen on the F-15. Finally, for the down-side of this air superiority replica, are three proper 600 gallon external tanks.

We recommend this kit as one of the better F-15s in 1/48th scale.

Model built and reviewed by Warren Munkasy

Testors F-15, Kit Number 334

This kit, scheduled for release in mid-1984, was not available for review and press time. However, Testors has informed us that this is the same kit as the updated Fujimi F-15 which has the F-15C/D style wheels. At the Hobby Industry of America show for 1984, this model was displayed with markings of the 48th FIS. That unit flies the F-15A, and, if the model represents an F-15C, then a problem will exist. We understand that a second set of markings will also be included. Testors' new catalog shows several "Testors/Fujimi" releases, and it will be interesting to see what Testors does with these kits.

1/32nd SCALE KIT

Revell F-15E, Kit Number 4719

We did not give Revell's 1/144th, 1/72nd scale, or 1/48th scale F-15 kits very high marks. But here the situation is different. This is probably the best 1/32nd scale kit that Revell has done recently of a modern jet fighter. It accurately represents the F-15E DRFD aircraft as it was originally displayed as what was then known as the "Strike Eagle." For this aircraft, the probes on top of the vertical tails should be equal in diameter, and the afterburner nozzles should have the "turkey feathers." Revell has represented both of these features correctly.

The model is nicely molded with recessed panel lines. There is some thin flash on a few parts, but this is easily removed. Detailing is better than we have seen on a lot of Revell's recent larger scale kits. For example, there is interior intake ducting that leads back to the engines, rather than just being hollow inside. The cockpit is also nicely detailed with raised instruments, rudder pedals, and control columns. The seats are four-piece units, which could have

Revell has released several modern aircraft in 1/32nd scale over the last few years. This kit of the F-15E is probably the best of all of them. ***(Evans)***

been a bit better, but are adequate and easily detailed. The rear instrument panel, with its four large CRT displays, is faithfully reproduced. A radar is provided behind a pop-off nose radome.

Landing and taxi lights are separate pieces with separate lenses. Main gear wheels are four pieces that include rubber tires. Full wheel wells are included with doors and actuating mechanisms. The tail hook can be displayed in the lowered position.

There is a large number of external stores as one might expect in the F-15E. These include a 30 mm gun pod, sixteen 500 pound bombs, and four AIM-9L Sidewinders. The instructions become a bit confusing here, as they show bombs in multiples of six being carried under the conformal tanks. Only four should be located under each tank.

We have seen this kit built-up with some extra detailing, and the results were truly outstanding. When this model is built, the modeler should take the time and patience that a kit this size demands, and the efforts will be justified with an exceptional finished model. We recommend this kit, and hope Revell will rework a future release into a single-seater with both F-15A/B and C/D wheels.

DECAL SUMMARY

Note: It is impossible to completely review decals unless the reviewer has actually used the decals on a model to see how they fit. Additionally, markings on a given aircraft can be changed from time to time, so it is possible that the decals may be accurate for one point in time and not another. Therefore, this section is more of a listing of decals available than a review. Review comments are made only in regard to fit when we have actually used the decals or as to accuracy when the evidence clearly indicated an error.

1/144th Scale Kits

LS Kit Number A112: Contains markings for an F-15A, 74-087, 1st TFW, FF tail code. No unit insignia is provided.

LS Kit Number A121: Contains markings for a JSADF-15J, 01-8101, nose number 101.

Otaki Kit Number OT2-18: Contains markings for the prototype F-15, 71-280. Includes F-15 Eagle and McDonnell Douglas markings.

Revell (ex Crown) Kit Number 1046: Contains markings for an F-15A, 75-046, 1st TFW, FF tail code. No unit insignia is provided.

1/100th Scale Kits

Entex, Mainia, Sanshoh Kits: Contain markings for two of the early prototype aircraft in the air superiority blue and orange scheme. F-15 Eagle insignia on nose and tail.

1/72nd Scale Kits

Airfix/MPC Kit Number 4406: Provides markings for two aircraft.

- F-15A, 77-149, 49th TFW, tail code HO, "City of Alamogordo."
- F-15B, 71-291, in red, white, and blue demonstration markings and globe on the tail.

Hasegawa/Minicraft Kit 093: Contains markings for two aircraft.

- F-15A, 73-100, 555th TFTS, 58th TFTW, tail code LA, two-tone compass gray scheme.
- F-15A, 73-094, 555th TFTS, 58th TFTW, tail code LA, air superiority blue scheme.

Hasegawa/Minicraft Kit 1160: Contains markings for F-15B, 71-291, in the bicentennial demonstration markings.

Hasegawa Kit Number 87211/Minicraft Kit Number 1214: Contains markings for two aircraft.

- F-15C, 78-517, 33rd TFW, tail code EG, Elgin AFB.
- F-15C, 78-525, 18th TFW, tail code ZZ, Kadena AB, Japan.

Hasegawa/Minicraft Kit Number E19: This kit had not been released at press time for this book. Publicity photos show the kit built as F-15D, 78-562, 18th TFW, tail code ZZ, Kadena AB, Japan. What other markings may be included is not known at this time.

Hasegawa/Minicraft Kit Number K18: Contains markings for the F-15E DRFD, 71-291, in the green camouflage scheme.

Monogram Kit Number 7580: Contains markings for F-15A-10-MC, 74-084, 27th TFS, 1st TFW, tail code FF, Langley AFB.

Monogram Kit Number 5434: Contains markings for the F-15E DRFD, 71-291 in the green camouflage scheme.

Revell Kit Number 4411: Contains markings for an F-15A, 73-103, 58th TFTW, tail code LA, Luke AFB.

1/48th Scale Kits

Fujimi Kit Number 5A27: Contains markings for F-15A, 73-103, 555th TFTS, 58th TFTW, tail code LA, Luke AFB. Alternative markings are red and white stripes or black and yellow.

Monogram Kit Number 5801: Contains markings for three aircraft.

- F-15A, 75-036, 1st TFW, tail code FF, Langley AFB, "Tidewater Alligator," pilot General Robert J. Dixon, crew chief R. Newsome.
- F-15A, 77-100, 33rd TFW, tail code EG, Eglin AFB, "Gulf Spirit," pilot LtCol. David L. Nichols, crew chief SSgt Tim Burns.
- F-15A, 77-085, 32nd TFW, tail code CR, Soesterberg, The Netherlands.

Revell Kit Number H-288: Contains markings for two aircraft.

- F-15A, 72-119, Streak Eagle.
- F-15A, 73-103, 555th TFTS, 58th TFTW, tail code LA, Luke AFB.

Tamiya Kit Number MA 124: Contains markings for six aircraft.

- F-15A, 73-057, 525th TFS, 36th TFW, tail code BT, Bitburg AB, Germany.
- F-15A, 76-075, 7th TFS, 49th TFW, tail code HO, Holloman AFB.
- F-15A, 74-124, 433rd FWS, 57th TTW, tail code WA, Nellis AFB.
- F-15A, 73-124, 433rd FWS, 57th TTW, tail code WA, Nellis AFB.
- F-15A, 73-086, 555th TFTS, 58th TFTW, tail code LA, Luke AFB.
- F-15A, 74-100, 94th TFS, 1st TFW, tail code FF, Langley AFB.
- F-15A, 72-119, Streak Eagle.

(Note: An updated re-release was scheduled but not available at press time. What markings will be included is not known at this time.)

Testors Kit Number 334: This kit had been announced but not released at press time. What markings will be included is not known at this time. A display model at the Hobby Industry of America show was finished in markings of the 48th FIS, and we believe these will be included.

Hasegawa/Minicraft Future Releases: The 1984 "Hasegawa Product Catalog" announced three new 1/48th scale F-15 kits coming during the year. These included kit P8 (an F-15E), P9 (an F-15J), and P10, (an F-15C). What markings these kits would include was not known at press time.

1/32nd Scale Kit

Revell Kit Number 4719: Contains markings for two different schemes that have been applied to the F-15E DRFD, 71-291. One scheme is the green camouflage scheme, and the second is the two-tone gray scheme.

1/144th Scale Sheets

Microscale Sheet Number 14-185: Provides markings for nine aircraft.

- F-15A, 74-116, 71st TFS, 1st TFW, tail code FF, Langley AFB.
- F-15A, 74-087, 27th TFS, 1st TFW, tail code FF, Langley AFB.
- F-15A, 75-029, 94th TFS, 1st TFW, tail code FF, Langley AFB.
- F-15A, 75-064, 36th TFW, tail code BT, Bitburg AB.
- F-15A, 73-104, 461st TFTS, 58th TFTW, tail code LA, Luke AFB.
- F-15A, 73-106, 555th TFTS, 58th TFTW, tail code LA, Luke AFB.
- F-15A, 73-111, 555th TFTS, 58th TFTW, tail code LA, Luke AFB.

- F-15A, 75-042, 57th FWW, tail code WA, Nellis AFB.
- F-15A, 72-119, Streak Eagle

1/72nd Scale Sheets

Microscale Sheet Number 72-185: Provides markings for the same nine aircraft as Microscale sheet 14-185 above.

Microscale Sheet Number 72-282. Provides markings for three aircraft.
- F-15A, 77-149, 49th TFW, tail code HO, "City of Alamogordo," Holloman AFB.
- F-15A, 75-036, 1st TFW, tail code FF, "Tidewater Alligator," Langley AFB.
- F-15A, 74-098, 71st TFS, 1st TFW, tail code FF, Langley AFB.

Microscale Sheet Number 72-283. Provides markings for three aircraft.
- F-15C, 78-533, 33rd TFW, tail code EG, "Gulf Spirit" Eglin AFB.
- F-15A, 77-405, 405th TTW, tail code LA, Luke AFB.
- F-15A, 71-282, USAF Flight Dynamics Laboratory, Eagle on tail.

Microscale Sheet Number 72-344: Provides markings for several Israeli aircraft credited with "MiG" kills, one of which is an F-15, 695, with two kills.

Microscale Sheet Number 72-378: Provides markings for four aircraft.
- F-15A, 76-112, 48th FIS, pilot Capt. Rick Townsen, Langley AFB.
- F-15B, 74-142, 43rd TFS, 21st CW, Alaskan Air Command, tail code AK, polar bear or rudder.
- F-15C, 80-037, 1st TFW, tail code FF, tail code FF, pilot Col. Gene Fischer, Langley AFB.
- F-15C, 79-036, 36th TFW, tail code BT, pilot Col. Richard L. Craft, Bitburg AB.

Scale Aircraft Modeling Magazine Vol. 5, No. 5, Sheet, (William Tell 1982): Provides markings for three aircraft.
- F-15A, 76-020, 60th TFS, 33rd TFW, tail code EG, Eglin AFB.
- F-15A, 76-090, 48th FIS, Langley AFB.
- F-15C, 78-533, 18th TFW, tail code ZZ, pilot LtCol. Jere Wallace, Kadena AB, Shogun warrior on tail.

1/48th Scale Decals

Detail & Scale Decal Sheet 0748, (33rd TFW F-15s): Provides markings for three aircraft from Eglin AFB.
- F-15A, 76-033, 33rd TFW, tail code EG, "Gulf Spirit" pilot Col. Jack R. Petry (See cover photo).
- F-15A, 75-036, 58th TFS, 33rd TFW, tail code EG, pilot Capt. Lee Gerstacker.
- F-15B, 76-126, 58th TFS, 33rd TFW, tail code EG, pilots Lt. Jori Cromwell, Col. Frank Osteen.

Markings for "Gulf Spirit" are different than those supplied on other sheets. One other F-15A, and an F-15C have also been named "Gulf Spirit," and are the aircraft represented on the other sheets.

Microscale Sheet Number 48-41: Provides the same markings as Microscale sheets number 14-185 and number 72-185.

Microscale Sheet Number 48-63. Provides stencil data for the F-15.

Microscale Sheet Number 48-114: Provides markings for two aircraft.
- F-15A, 77-405, 405th TTW, tail code LA, Luke AFB.
- F-15A, 77-149, 49th TFW, tail code HO, "City of Alamogordo," pilot Col. "Hal" Dortch, Holloman AFB.

Microscale Sheet Number 48-125: Same as Microscale sheet number 72-344.

Microscale Sheet Number 48-152: Same as Microscale sheet number 72-378, except that the aircraft from the 36th TFW (F-15C, 79-036) is not included.

1/32nd Scale Sheet

Fowler Sheet Number FD 3202: Provides markings for two aircraft.
- F-15B, 75-083, 48th FIS, Langley AFB.
- F-15B, 71-290, first two-seat F-15 in demonstration markings.

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